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PLAGUE

NIKANOROFF. La peste au Sud-Est de l'Union des Républiques Soviétistes Socialistes. [**Plague in the S.E. Soviet Republics.**] —*Bull. Office Internat. d' Hyg. Publique.* 1928. Apr. Vol. 20. No. 4. pp. 537–564. With 4 text figs. & 1 map.

This is an ordinary report describing outbreaks of plague from 1898 to 1927. The localities and number of cases are given in a table. The usual source of infection is the spermophiles: *Sp. musicus* and *Sp. mugosaricus* in the south-east and mice in the south. *Cynomys fulvus*, gerbilles, etc., are also found over the large area referred to, and these are known to suffer from plague. The fleas mentioned are *Ceratophyllus tesquorum*, *Neopsylla setosa* and *Ctenophthalmus breviatus* n. sp. Much of the material in this report has appeared in previous papers [see this *Bulletin*, Vol. 24, pp. 935–937 (NIKANOROFF to GOLOV); p. 455 (ZABOLOTNY)].

J. H. Tull Walsh.

KLING (C. A.). L'apparition de la peste en Suède en 1927. [**Arrival of Plague in Sweden, 1927.**]—*Bull. Office Internat. d' Hyg. Publique.* 1928. Apr. Vol. 20. No. 4. pp. 565–567.

The merchant ship *Ransholm* from Rufisque in Senegal had a case of plague shortly after leaving port. Just before the ship arrived at Rotterdam another sailor complained of inguinal pain and a third showed the same symptoms as the other two. When the ship arrived at Gefle on the Baltic the Sanitary Inspector was warned, and the cases were examined. Yersin's bacillus was found in pus from the first case. Of 21 men 4 were attacked but the infection was not very virulent. The ship was fumigated and rats destroyed.

J. H. T. W.

SUÁREZ (Pablo Arturo). Algunas observaciones sobre la peste negra y la pulga *Cheopis* en el Ecuador. [**Plague and *Xenopsylla cheopis* in Ecuador.**]—*Bol. Oficina Sanitaria Panamericana.* 1928. Apr. Vol. 7. No. 4. pp. 453–471. With 8 charts and 1 map in text.

Plague first appeared in Guayaquil in February, 1908. It spread amongst the human population for three months only, but remained among the rats, 1–2 per cent. being found infected throughout the year. Subsequently, till 1916, human cases were seen occasionally,

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about 3·96 per mille during the period October–May, and since 1917 only 1·34 per mille. Almost the only flea found among rodents where plague existed was the X. *cheopis*. Usually the number found was 1·3 per rat, but where the index rose to 6 or over plague has been permanently endemic. In Guayaquil the index in winter was 6, in the summer 1·6. In Ambato plague is occasionally present and the index varies with temperature and atmospheric conditions; in the years in which there was no plague either in rodents or man the index was 0·71. The flea was not found in rodents in districts where the mean temperature was below 14° C.

In the eight months during which the flea investigations were carried out 2,070 rats were examined from the hilly districts, and 3,430 from Guayaquil and its environments, while 18,872 fleas were classified from the former and 9,822 from the latter. The species of rat most numerous on the coast was *R. alexandrinus*, in the hills *R. norvegicus* and *Mus musculus*.

H. Harold Scott.

Chacín Itriago (L. G.). La peste bubónica en Venezuela. [**Bubonic Plague in Venezuela.**]—*Gac. Med. de Caracas.* 1927. Oct. 31. Vol. 34. No. 20. pp. 309–314. With 2 maps.

Plague is said to have first appeared in Venezuela in 1908 from Trinidad. The district invaded was La Guaira and the epidemic disappeared at the end of the year. In Caracas, however, it recurred, with the exceptions of 1913, 1915, and 1917, every year till 1919. Investigations showed that all the patients were employed at, or were constant visitors to, the Public Market of Valles de Tuy. Isolation of the sick, closure of the market, examination of the rats caught and measures to exterminate them in the market and the homes round about have resulted in the abolition of plague since 1919. Though several thousand rats are still examined yearly none have been found infected.

H. Harold Scott.

Connal (Andrew) & Paisley (J. C.). **Intestinal Haemorrhage in Rats suffering from Septicaemic Plague considered as a Factor in the Spread of Human Pneumonic Plague.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1928. Jan. 31. Vol. 21. No. 4. pp. 289–294. With 1 map. [Medical Research Inst., Lagos.]

In the course of the routine examination of captured rats in Lagos it was noted that in a number of animals, dead of septicaemic plague, the intestines were more or less full of blood. The macroscopic appearances are striking. The entire or greater length of the intestines is distended and thin-walled, and the bright red contents are very obvious. The stomach has never been found involved. The contained matter consists of blood-stained fluid with mucus, faecal matter and a number of worms. Stained smears show the plague bacillus. There is no ulceration of the intestines nor any sign of traumatic cause of the haemorrhage. The possibility of an alimentary infection was considered. The absence of retro-peritoneal or other buboes in the abdominal cavity did not favour this supposition. Attempts to infect healthy rats by feeding with the liver and spleen of infected rats failed. It was concluded that this haemorrhage in

rats that died of septicaemic plague is a late manifestation of that disease. Experiments were performed to see whether this blood-stained material would produce pneumonic plague. In five instances the infective material was introduced intratracheally mixed with sterile dust, resulting in the death of four monkeys from pneumonia. In three cases the material was applied as dry spray over the mouth and nostrils, failing to cause infection. In two cases the infective matter was applied as a liquid spray with positive result in one case.

J. H. T. W.

Wu Lien-Teh. Problèmes concernant la peste pneumonique. [**Pneumonic Plague.**]—*Bull. Office Internat. d'Hyg. Publique.* 1928. Apr. Vol. 20. No. 4. pp. 573–589. [2 refs.]

Although this paper contains nothing new it is of considerable interest. The author reviews the history of pneumonic plague from the fourteenth century to the present time. He gives a short account of the sources of infection and pathology and finally discusses the value of vaccines and serums.

J. H. T. W.

Schut (J.). Over het optreden en de behandeling van longpest en septicaemische pest in den Tengger (Java). [**Outbreaks and Treatment of Pulmonary and Septicaemic Plague in the Tengger District (Java).**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1928. Vol. 68. No. 1. pp. 99–111.

Schut describes three small outbreaks of septicaemic and pulmonary plague in villages of the mountainous Tengger district (East Java). The epidemiology of the outbreaks presented no features of special interest; the clinical picture was the usual. The author is inclined to believe that cases among the contacts whose temperature rose above 37° C., or whose pulse rose above 130 (especially without adequate rise of temperature) were mild cases of plague. In a few of such cases and single cases of clinically more marked plague he thinks that the favourable outcome may be ascribed to treatment with quinine-urethane injections (twice per day 1–2 gm) or aristochin (3 times 0·5 gm.). He also advises a trial with prophylactic administration to the contacts of omnadin, the antibacterial action of which in various infectious conditions appears promising, but which, by lack of antitoxic properties, fails in cases of manifest plague.

W. J. Bais.

Dawson (A. S.). **The Treatment of Bubonic Plague by Intravenous Injections of Anti-Plague Serum.**—*Indian Med. Gaz.* 1927. Dec. Vol. 62. No. 12. pp. 691–692.

As soon as one knows the case to be one of plague there should be no hesitation in giving an intravenous injection of 30 to 40 cc. of anti-plague serum, and a further dose of 20 to 60 cc. of the same serum into the cellular tissue of the abdomen or into the inner aspect of the thighs or flanks. The dosage of the serum may depend on the temperature but no hesitation should occur in spite of even very high temperature. Immediately following on the injections, within six

hours, the temperature will fall to 99° F., or normal, and the results are so encouraging that even if you see the patient in an unconscious condition you may hope to save his life. The author has dealt with more than 200 cases of plague during the years 1924–25–26–27. Of 50 cases first seen in a moribund condition there is a record of 16 successfully treated by this method. When the temperature is very rapidly dropping to normal or sub-normal with profuse sweating the patient's relatives should be warned that fatal cardiac collapse may supervene if the patient sits up or tries to move. Absolute and complete rest in bed is indicated and a stimulant heart tonic is given. The author uses the following prescription :—

Liq. Adrenalin hydrochlor (P. D. & Co.)	m 40
Tt. Digitalis (P. D. & Co.)	m 30
Sp. Ammon. aromat.	m 30
Aq.	...ad oz. 1

every second or third hour if necessary.

The serum used was obtained from the Pasteur Institute of Paris : the fresher the serum the better the result.

J. H. T. W.

DE SMIDT (F. P. G.). *Bacillus pestis* : **Agglutination and Absorption Tests.**—*Kenya & East African Med. Jl.* 1928. Feb. Vol. 4. No. 11. pp. 337–347. [5 refs.]

The experiments were carried through with a view to determining whether specific variants exist in the plague group such as exist in the typhoid group of bacilli. Subcutaneous injections of killed *Past. pestis* (bacillus pestis) did not furnish agglutination sera, but a serum of titre 1–17500 was obtained by injection, in the rabbit, of a live culture of an avirulent laboratory strain in amount 0·3 mgm. and thereafter 0·55, 0·55, 1·1, 2 mgm.at intervals of 38, 16, 8 and 20 days. The broth used in culture of the plague bacillus is obtained by auto-digestion of pancreas and has a reaction pH 7. All cultures for titration were in a 10 per cent. dilution of this broth, which was incubated at 30° C. for 48 hours, diluted to standard opacity and formalinized at 0·2 per cent. Very little difficulty was experienced with spontaneous agglutination in the tests. The absorption method of testing was so designed as to be economical of the agglutinating serum. A full account of experiments and method is to appear elsewhere.

W. F. Harvey.

BEZSONOVA (A.), SEMIKOZ (T.) & KOTELNIKOV (G.). **Atypic Forms of the Colonies of** *B. pestis.*—*Rev. Microbiol. et Epidémiol.* 1927. Vol. 6. No. 4. English summary pp. 472–473. [In Russian pp. 394–401. With 15 text figs. 21 refs.]

The literature is referred to in detail (p. 401). The colonies described and figured were seen during experimental work on guineapigs. Out of 755 tests these atypical colonies occurred in about 5 per cent., mostly in agar cultures from urine, bile and lymphatic glands. They have, under a low power objective, yellowish-brown colour with uniform

layers in the centre surrounded by a more or less wide zone of large grained construction. In general appearance such colonies resemble somewhat a sunflower. Sown in broth or agar as subcultures these varieties produce typical growths. The guineapig infected from these atypic colonies perished giving pure typical culture of *Past. pestis*.

J. H. T. W.

Smirnova (E. I.). **On the Fitness of Salt Media for the Differential Diagnostics of Plague and Pseudotuberculosis in Rodents.**—*Rev. Microbiol. et Epidémiol.* 1928. Vol. 7. No. 2. English summary p. 229. [In Russian pp. 176–182. 3 refs.] [State Inst. of Microbiol. & Epidemiol. for S.-E. of U.S.S.R.]

Past. pestis (bacillus pestis) and *B. pseudotuberculosis rodentium* gave growth only when the content of salt in broth did not exceed 4 per cent.

W. F. Harvey.

Laud (D. S.). **Haffkine's Anti-Plague Vaccine as a Prophylactic against Plague, amongst Primates.**—*Vet. Jl.* 1928. Mar. Vol. 84. No. 3. pp. 117–122.

The author records three cases of plague among dog-faced baboons in the Bombay zoological gardens. It is stated in one case: "Plague bacilli seen in the smears of spleen, liver and heart blood." These cases occurred in May, 1925. During June a number of monkeys were inoculated with Haffkine's anti-plague vaccine. Three tables give the name of the species of monkey and the dose injected. No more cases of plague were seen. The source of infection is not clearly stated.

J. H. T. W.

de Smidt (F. P. G.). **Nairobi Plague Prophylactic: Notes on its Potency.**—*Kenya & East African Med. Jl.* 1928. Mar. Vol. 4. No. 12. pp. 364–378. [7 refs.]

The Nairobi vaccine is prepared on the lines of the Haffkine vaccine of Bombay. Animal experimentation with this vaccine was carried out on white rats. In one such experiment, in which 12 rats were treated prophylactically with 0·3 cc. vaccine and 12 remained as untreated controls, there were 8 survivors among the treated with a test dose of 0·2 mgm. plague bacilli and none among the controls. Suggestive returns have been obtained of the value of the Nairobi vaccine in practice, although vaccination data are difficult to collect, probably more so than in India. The reaction to plague inoculation is disagreeable and this constitutes a difficulty in persuading the inhabitants of Kenya to be inoculated on a large scale except in the presence of an epidemic. It has not, accordingly, been considered expedient to exceed the standard dose of 2 cc. and it is considered that inoculation should be repeated where necessary every six months.

W. F. Harvey.

GIRARD (G.). Septicémie à bacille de Yersin chez des lapins domestiques. Sa relation avec la peste murine. [**Septicaemic Plague in Tame Rabbits and its Relation to Rat Plague.**]—*Bull. Soc. Path. Exot.* 1928. Apr. 18. Vol. 21. No. 4. pp. 299–301. [3 refs.] [Pasteur Inst., Tananarive.]

An epidemic among breeding rabbits was preceded by the finding, in the neighbourhood, of a rat dead of plague and the occurrence of a human case. In this epidemic 35 rabbits out of 50 had died with symptoms of haemorrhagic septicaemia and numerous cocco-bacilli with bipolar staining were found in films from spleen and liver. Guinea-pigs inoculated on the shaven skin with spleen pulp of dead rabbits died in 3 or 4 days with all the signs of septicaemic plague. The organism isolated from the heart had all the characters of the plague bacillus, grew better at 22° C. than at 37° C., grew in chains in bouillon, which it did not render turbid, did not ferment lactose, saccharose or glycerin, but fermented mannite and glucose without production of gas. White rats and mice succumbed to inoculation with the organism. The failure to ferment saccharose is said to be a character differentiating the plague bacillus from pasteurella organisms and failure to ferment glycerin from pseudotuberculosis of rodents. Moreover the organisms isolated from rabbits were pathogenic for the white rat in contrast to the organism of pseudo-tuberculosis. The rabbit flea is *Spilopsyllus cuniculi*. Neither cheopis nor ceratophyllus were found on the rabbits. It is considered that a case has been made out for the possibility of transmission of plague from rat to rabbit.

W. F. Harvey.

IIMURA. Les épidémies de peste au Japon.—*Bull. Office Internat. d'Hyg. Publique.* 1928. Apr. Vol. 20. No. 4. pp. 568–572.

KENYA & EAST AFRICAN MEDICAL JOURNAL. 1928. Feb. Vol. 4. No. 11. pp. 347–350.—Simple Notes on Some Tropical Diseases. A Popular Account of the Commoner Diseases of East Africa, with Hints on General Lines of Treatment, for the Use of Those out of Reach of Immediate Medical Treatment. VI. Plague.

J. H. T. W.

CHOLERA.

YUE (M. K.). **The Epidemic of Cholera in Hinghwa City, Fukien, 1st to 25th September, 1927.**—*China Med. Jl.* 1928. Mar. Vol. 42. No. 3. pp. 151–153.

One cholera epidemic is much like another, but this short paper is interesting and well written. The author describes the city of Hinghwa, with its gates and fine circular wall four miles long. It contains 40,000 inhabitants. All wells are supplied by surface and subsoil water and grossly polluted. The large number of leaking latrines and their close proximity to the wells is staggering. When the epidemic was at its height the streets were deserted and fear was written on the faces of those seen walking about. A spacious monastery close to the hospital was converted into a temporary cholera hospital. Twenty-five cases were admitted and eighty treated outside. Rogers' saline treatment and "Tomb's Mixture" were used and sanitary measures were adopted. "At the beginning of our work, we were prepared to meet with opposition, but to our great surprise we were received with open arms. . . . Fear has driven the people to give Western medical methods a trial." As an aftermath a group of gentlemen went round with their hats making a household collection. Three thousand dollars was collected and a ceremony was held at the temple known as "praying for peace." Each householder was given two red lanterns to hang in front of the door. The streets were swept; never was the city so clean.

J. H. Tull Walsh.

DAWSON (A. S.). **A Note on the Treatment of Cholera.**—*Indian Med. Gaz.* 1928. Apr. Vol. 63. No. 4. p. 204.

The author describes his routine method in the treatment of cholera with an "essential oils" mixture and saline injections. The paper contains nothing new.

J. H. T. W.

PALMER (F. J.). **The Treatment of Cholera by Acid and Cresol.**—*Indian Med. Gaz.* 1928. May. Vol. 63. No. 5. pp. 259–260.

This is a further contribution to treatment of cholera by acid and cresol. [see this *Bulletin*, Vol. 22, p. 766 (PALMER)].

J. H. T. W.

ROSS (W. C.) assisted by BAGCHI (K. N.) & ROY (B. C.). **The Bacteriophage in Cholera.**—*Indian Jl. Med. Res.* 1928. Apr. Vol. 15. No. 4. pp. 965–968. [3 refs.]

It was found possible to isolate an active bacteriophage from the stools of cholera cases taken at various times, from 6 hours to 4 days after onset of rapid and strong natural recovery. The most active choleraphage was obtained on the 3rd day. It is specially noteworthy that six control cases, in which no definite natural recovery took place, furnished no active bacteriophage. The bacteriophages were of various degrees of virulence and, for the most part, that virulence was increased by repeated subculture for 1 to 3 weeks in Martin's bouillon. Of 16 cases treated with choleraphage only two died, as against 3 deaths out of 7 treated otherwise; but the author does not regard these figures as having statistical validity. The

treatment consisted of an injection of 0·25 cc. of choleraphage and 2 cc. by the mouth, as soon as a case was admitted. A study of records indicated that a strong natural recovery began to manifest itself within 12 hours of administration and continued uninterruptedly.

W. F. Harvey.

KRAUS (R.). Zur Frage des Formenwechsels der Vibrionen. [**Variability of Form in Vibrios.**]—*Cent. f. Bakt.* I. Abt. Orig. 1928. Vol. 106. pp. 163–169. With 9 text figs. [State Serotherap. Inst., Vienna.]

A case of watery diarrhoea with high temperature, occurring during the puerperium, afforded a pure culture of a non-haemolytic vibrio, which was neither a cholera vibrio, a paracholera vibrio, nor one of the fish vibrios of DAVID (this *Bulletin*, Vol. 24, p. 927). On agar the vibrio showed characteristic morphology at 37° C., but became shorter and thicker when incubated 48 hrs. at 22° C. When bouillon cultures of 24 hrs. or older were examined, typical vibrios were found in the surface pellicle. The organisms from the depth of the culture, however, were for the most part spherical and stained either intensively, or feebly, or metachromatically; some were even gram-positive. Subculture on agar restored the typical vibrio form. The interesting fact was demonstrated that the true cholera vibrio, the El Tor and Nasik vibrios, and the vibrios of Metschnikoff, Finkler-Prior, and David showed exactly the same variations in the same circumstances. Whether these represent involution forms or developmental forms in the sense of LOEHNIS, ALMQUIST and ENDERLEIN, the author is not prepared to say. The vibriolytic spherulation brought about in a Pfeiffer's intraperitoneal test with immune serum differs from the spherical culture forms in the absence of variations in size and staining reaction.

W. F. Harvey.

LAGRANGE (E.). Sur quelques particularités des vibrions cholériques. [**Peculiarities of Cholera Vibrios.**]—*C. R. Soc. Biol.* 1928. May 25. Vol. 98. No. 17. pp. 1526–1527. [4 refs.] [Bact. Lab., Maritime-Quarantine Health Council of Egypt, Alexandria.]

Different strains of cholera vibrios which were examined showed very variable powers of coagulating and of liquefying proteins. They showed also very variable titres of agglutination by the same serum and other variable characters.

W. F. Harvey.

ANDREI (Giuseppe). Sulla agglutinabilità del V. del colera e dei V. colerasimili da parte dell' acido lattico. [**Agglutinability of the Cholera Vibrio and of Cholera-like Vibrios.**]—*Bol. d'Istituto Sieroterap. Milanese.* 1927. Feb. Year 5. Vol. 6. pp. 47–53. [9 refs.] French summary p. 53. [Inst. of Bact. & Immunol., R. Univ., Turin.]

Fifteen strains of cholera vibrio and 4 cholera-like vibrios were investigated by the method of lactic acid agglutination of VERCELLANA, by the peptone agglutination method of LUSENA and by the thermo-agglutination method of BURNET. None of these served to differentiate the one group from the other.

W. F. Harvey.

Hachiya (Tsunetaro) & Takahashi (Masamichi). [**Studies on the Strains of Cholera Vibrios in 1927 Epidemic.**]—*Tokyo Iji-Shinshi* (*Tokyo Med. News*). 1927. Oct. No. 2543. [Summarized in *Japan Med. World*. 1928. Feb. 15. Vol. 8. No. 2. p. 41.]

The authors carried out biological and immunological tests with five strains obtained from cases occurring during the 1927 epidemic of cholera; one from a case occurring in Shanghai and four from cases among ship passengers arriving at Yokohama. The results were the same in all five as regards biological and bacteriological tests; but from the view point of agglutination three were identical with Kabeshima's so-called typical strain while the other two were like his atypical strains. It was interesting to notice that both types, having differences in agglutination, co-existed in the same epidemic. J. H. T. W.

Fujimori (K.). Ueber die Impedinerscheinung der Komplementbindungsreaktion bei Choleravibrionen. [**On the Impedin Phenomenon of the Complement Fixation Reaction with Cholera Vibrios.**] —*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1928. May 7. Vol. 56. No. 1-2. pp. 175–190. [9 refs.] [Surg. Clinic, Imperial Univ., Kyoto.]

The impedin phenomenon is represented, in the test, by the inhibitory action on the amount of fixation by antigen exerted by an unheated culture filtrate. That inhibition is removed by heating, while the fixing power of the antigen is practically unaffected. The criteria, distinguishing specific complement fixation reactions from non-specific, which are adopted and confirmed, are:—(1) Extraction of lipoids of the antiserum is wholly without effect in a specific reaction but causes the reaction to disappear if non-specific; (2) conformity with the law of multiple proportions by which simultaneous and equal increase of antigen and antiserum gives directly proportional results; and (3) with the law of homologous complement fixation by which fixation occurs sooner with increase of antigen quantities than with serum quantities. Two modes of determination of amount of fixation were employed, one, the better, in which the quantity of erythrocytes left unhaemolysed at the end of the reaction was measured and the other in which the maximum amount of complement fixed was taken as the measure. It was found that, (1) anticomplementary action or "spontaneous complementosis" is definitely greater with heated vibrio filtrate than with unheated; (2) specific complement fixing action was also greater for a heated filtrate than for an unheated; (3) the quantities of unhaemolysed erythrocytes in a test involving the use of unheated culture filtrate as antigen, of filtrate heated for 20 mins. at 100° C. and of filtrate heated for 120 mins. were in the proportions respectively 8, 16·5, and 12; (4) a factor, which has to be calculated, must be employed to obtain from residue of unhaemolysed erythrocytes the relative complement fixing power of different antigens; (5) the impedin phenomenon, both for specific and non-specific complement fixation was demonstrated with cholera filtrates.

W. F. Harvey.

Friendenreich (V.). Vibrions provoquant le phénomene d'agglutination sanguine de Thomsen. [**Vibrios causing Blood Agglutination.**]—*C. R. Soc. Biol.* 1928. Mar. 23. Vol. 98. No. 11. pp. 894–896. [3 refs.] [Inst. of General Path., Univ., Copenhagen.]

The author has already shown (*C. R. Soc. Biol.* xcvi, 1927, 1079) that the agglutination of erythrocytes of all blood groups by serum

of any group, which THOMSEN (*C. R. Soc. Biol.*, xcvi, 1927, 556) observed occasionally when tests were delayed for 18 to 24 hours, was due to the action of a coryneiform bacterium called by him "M". The serum agglutinin was distinct from the *a* and *b* blood group agglutinins. He has now found another bacterium "J" and strains of cholera and cholera-like vibrios, which effect the same transformation of erythrocytes. An example of this phenomenon is given for the cholera vibrio. A 2 per cent. suspension of erythrocytes of type II is centrifuged and the supernatant fluid replaced by the filtrate of a 4-day bouillon culture (at 22° C.) of *Vibrio cholerae.* Agglutination of this suspension was tested with the serum of the same individual and gave a titre of 1 in 4 in 30 minutes, 1 in 16 in 45 minutes and an end titre of 1 in 24 in 90 minutes. Erythrocytes, transformed by one organism, absorbed the special agglutinin from the serum for all other organisms.

W. F. Harvey.

FAIRBROTHER (R. W.). **The Structure of the *V. cholerae*, with Reference to its Immunizing Properties.**—*Brit. Jl. Experim. Path.* 1928. Apr. Vol. 9. No. 2. pp. 89–96. [26 refs.] [Pasteur Inst., Paris, & Lister Inst., London.]

HORDER and FERRY (*Brit. Med. Jl.* 1926. Vol. 2. p. 177) showed that the washings of organisms afforded a fluid with high agglutinogenic value, which was practically non-toxic. In the author's experiments the supernatant fluid, obtained by centrifuging for 2 hours at 6–7,000 revolutions a 24-hour bouillon culture of V. *cholerae*, was re-centrifuged for one hour. This second supernatant fluid, called the "centrifugate" had 0·5 per cent. phenol added to it and was tested for protective power against other vaccines. It was not a pure washing, for it still contained about half a million vibrios per cc., as well as all the substances which are easily detachable from organisms. The other vaccines used were prepared by heating the whole bouillon culture to 100° C. or 56° C. for varying times, adding 0·5 per cent. phenol and using these, or "centrifugate," or the deposit of organisms after the supernatant fluid had been removed. Two experiments may be selected in illustration of the results obtained.

(1) Guineapigs were inoculated with 0·5, 1, and 2 cc. of vaccine subcutaneously on alternate days. Nine days after the last dose 1-10th of a 24-hr. agar slope of living vibrios was administered intraperitoneally in the test vaccine animals and 1-15th of a slope in the control untreated anlmals. With (a) whole vaccine heated 1 hr. at 56° C., (b) "centrifugate," (c) bacterial deposit and (d) controls, for 8, 7, 5, and 4 animals used respectively, the survival rates were 75, 43, 80, 0 per cent.

(2) With (a) whole vaccine heated 1 hr. at 56° C.,(b) whole vaccine heated 1 hr. at 100° C., and untreated controls, for 8, 8, 4 animals used, the survival rates were, 25, 62·5, and 0 per cent. respectively.

Summarized, the experiments, as a whole, lead to the conclusions :— 1. A small degree of protection is afforded by the use of "centrifugate" but this is probably due to the presence of vibrios. 2. The substance of *V. cholerae* which on inoculation gives rise to protection in animals, is intimately connected with the body protoplasm ; it is also heat stable (100° C. 1 hour).

W. F. Harvey.

Inouyé (Z.). De la réceptivité de la muqueuse intestinale au cours de l'immunisation contre le vibrion cholérique. [**Extracts of Intestinal Mucous Membrane and Cholera Immunization.**]—*Ann. Inst. Pasteur.* 1928. Apr. Vol. 42. No. 4. pp. 394–402.

The organs used were washed, minced, suspended in normal salt solution, left 24 hrs. in the ice chest, heated for 30 minutes at 56° C. and centrifuged. This organ extract was injected intraperitoneally in the guineapig and immediately after a lethal or sublethal dose of cholera was injected. The cholera culture used killed intraperitoneally in a dose of 1-20 of an agar slope.

1. *Control series.* (a) Three guineapigs received 2, 1, and 0·5 cc. of normal intestinal extract, followed by 1-50 cholera culture; (b) 3 guineapigs received the same amounts of intestinal extract of a parenterally vaccinated guineapig, followed by 1-50 and 1-30 cholera culture; (c) 3 guineapigs received the same amounts of intestinal extract without vibrios; (d) 2 guineapigs received 1-50 and 1-30 cholera culture without intestinal extract. Guineapigs of experiment (a) all died, of experiment (b) all survived, and of experiment (c) showed no symptoms. The guineapig of experiment (d) which received 1-30 cholera culture died, that which received 1-50 lived. Sensitization of the guineapig by intestinal extract of unvaccinated animals to a non-lethal dose is manifest in this control experimentation. That it is a non-specific sensitization was shown by the fact that the same phenomenon was evident with extracts of liver, kidney and muscle.

2. The results for the test series were :—(1) Guineapigs receiving intestinal extract of parenterally vaccinated animals survive inoculation of the lethal dose (1-20) of culture. (2) Guineapigs receiving intestinal extract of animals vaccinated *per os* react just as if they had received intestinal extract of unvaccinated animals. (3) Guineapigs receiving liver and kidney extracts of parenterally vaccinated animals are not sensitized by these to sublethal doses of cholera (1-50). (4) Guineapigs receiving normal intestinal extract, which has been treated with bile for 15 hrs., washed and then treated for 15 hrs. with anticholera serum and again washed, survive inoculation of the lethal dose of cholera, whereas those receiving extract treated by specific serum only without bile succumb, as also do those receiving extract treated by bile and normal serum. (5) Guineapigs ingesting bile and then killed cholera vaccine are immunized to an intraperitoneal lethal dose whereas those ingesting cholera vaccine without bile succumb.

W. F. Harvey.

Kraus (R.) & Kovács (N.). Ueber die experimentellen Grundlagen eines neuen Schutzimpfungsverfahrens gegen Cholera mittels Toxoide. [**Experimental Basis of Protective Inoculation against Cholera with Toxoid.**]—*Wien. Klin. Woch.* 1928. Mar. 8. Vol. 41. No. 10. pp. 337–338. [State Serotherap. Inst., Vienna.]

The El Tor vibrio, which both agglutinated with cholera serum and gave the Pfeiffer reaction, was originally shown by Kraus to be haemolytic and to produce an acute toxin. An antitoxin was obtained to this toxin which neutralized the toxins of El Tor, cholera and other vibrios, so that it could be designated a panvibrio-antitoxin. This antitoxin was used by Kraus in a cholera epidemic in 1908. The

present research has shown that the toxin of the vibrio Kadiköj, treated with 0·2 to 0·5 per cent. formalin at 38° C. for a few days, so as to convert it into toxoid, is detoxicated and still remains antitoxigenic. Guineapigs and rabbits subcutaneously inoculated with small doses of toxoid and tested 8 days later intravenously with one or more lethal doses of toxin, remained alive while control animals died in a few minutes. Further trials were made to determine whether previously treated guineapigs were also immune to infection and success attended the experiments with one or more lethal doses of El Tor and cholera vibrios, intraperitoneally injected. The basis for protective inoculation against cholera was thus established. It was also shown that this toxoid was without marked local or general reaction in man in doses of 0·5 to 1·5 cc. and that specific agglutinins were produced to cholera vibrios. It remains to test in practice whether the antitoxic plus anti-infectious immunity, developed to this toxoid, gives better results than those obtained by the inoculation of killed vibrios alone.

W. F. Harvey.

Kraus (R.) & Kovács (N.). Ueber die experimentellen Grundlagen einer präventiven Schutzimpfung gegen Cholera mittels Toxoide. I. Mitteilung. [**Experimental Basis of Protective Inoculation against Cholera with Toxoid.**]—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1928. Mar. 27. Vol. 55. No. 3-4. pp. 316–323.

It is immaterial for the argument here set out whether the atypical vibrios El Tor and Kadiköj are to be regarded as true cholera or as paracholera. The important facts are that animals actively immunized with their toxins are protected against the corresponding toxin, against the toxins of cholera and other vibrios and are also immune to infection with these vibrios. The next step was to obtain toxoids to these toxins and immunize with toxoid instead of toxin. A 10-day bouillon culture of Kadiköj or El Tor, centrifuged to clear, carbolized at 0·5 per cent. and then, after 24 hours, formalinized at 0·5 per cent., was kept 5 days at 37° C. Rabbits survived injection of 1 cc. of this toxoid intravenously. A rabbit was injected subcutaneously with successive doses of 0·5, 1, 1, and 2 cc. toxoid and survived intravenous injection of 1 cc. toxin 8 days later. A guineapig received 1 cc. toxoid subcutaneously, was tested one month later intraperitoneally with a half loop of virulent El Tor agar culture, and survived. The same result was obtained with cholera instead of El Tor infection. All experiments were controlled. It remains now to test in man whether active toxoid immunization or a combined vaccine and toxoid immunization will give improvement over previous results.

W. F. Harvey.

Jones (E. L.). **Anticholera Vaccination of the United States Marines at Shanghai, China, with Notes on Local Conditions.**—*U.S. Nav. Med. Bull.* 1928. Apr. Vol. 26. No. 2. pp. 438–451. [3 refs.]

This is a long official report by the Commander of the Medical Corps, U.S. Navy. It deals with sanitary conditions in Shanghai and with many other diseases besides cholera. For the U.S. forces the inoculation of the Fourth Regiment, with a strength of 1,500 men, was completed on June 29, 1927, and at the same time 190 men of the

brigade troops were given their first injection. A number of the members of officers' families residing in Shanghai came to the regimental hospital and requested anticholera vaccination. The vaccine was made in the laboratory of the Municipal Health Department. Two strains of *V. cholerae* were used, one obtained from the Lister Institute, London, the other a local strain isolated in 1925. The vaccine contained approximately 4,000,000,000 to each cc. It was tested in the Municipal Jail and serum taken from the convicts 10 days after the second injection showed agglutination in dilutions ranging from 1 to 80 to 1 to 2,000. No agglutinations were made with sera from the marines owing to want of time. The great majority of the men showed no reaction and no serious reactions were encountered in any of the patients. Vaccination should certainly be repeated every cholera season.

J. H. T. W.

MALLIK (K. L. Basu). **The Value of Inoculation in the Prevention of Cholera.**—*Indian Med. Gaz.* 1928. Feb. Vol. 63. No. 2. pp. 77–79.

During the last six years the author has been using anticholera vaccine for the prevention of cholera among Europeans and certain classes of Indian employees of a jute mill near Calcutta. In all 420 inoculations were carried out during the six years, distributed among a total personnel and establishment of 280. Among these 280 there were 32 cases of cholera in six years, but in every instance the patient was a non-inoculated person. The following table gives a summary of the series :—

SUMMARY OF CHOLERA INOCULATIONS.

Year.	Europeans.	Indians.			Total.	Incidence of clinical cholera in the inoculated.	
		Middle or Babu Class.	Menials and Labour Contacts.	Boat Crew.		Inoculated persons including boat crew.	Uninoculated boat crew only.
1922 ...	38	7	5	0	50	0	—
1923 ...	7	0	3	25	35	0	1
1924 ...	0	0	0	0	0	0	1
1925 ...	30	48	15	41	134	0	7
1926 ...	5	4	0	0	9	0	16
1927 ...	33	50	82	27	192	0	7
	113	109	105	93	420	0	32

J. H. T. W.

Ross, (W. C.). **The Transmission of Cholera.**—23 pp. 1928. Jan. Patna: Supt., Govt. Printing, Bihar and Orissa.

This is an interesting and readable pamphlet, but it contains nothing new.

J. H. T. W.

Health. Melbourne. 1928. Jan. Vol. 6. No. 1. pp. 17–24.—Report on an Outbreak of Cholera on Shipboard.

Ross (W. C.). The Epidemiology of Cholera.—*Indian Jl. Med. Res.* 1928. Apr. Vol. 15. No. 4. pp. 951–964. With 6 charts. [6 refs.]

Russell (A. J. H.) & Sundararajan (E. R.). The Epidemiology of Cholera (IV).—*Indian Jl. Med. Res.* 1926. Oct. Vol. 14. No. 2. pp. 409–449. [35 refs.] [*v. Bull. of Hyg.* Vol. 3. p. 357.]

Takano (Rokuro), Ohtsubo (Itsuyo) & Inouye (Zenjuro). Les épidémies de choléra au Japon.—*Bull. Office Internat. d'Hyg. Publique.* 1928. Feb. Vol. 20. No. 2. pp. 243–258.

Tomb (J. Walker). Hypertonic Saline Injections in Cholera.—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Nov. 25. Vol. 21. No. 3. pp. 199–202. [12 refs.]

Tournier (E.). Remarques sur des cas de choléra observés au camp de l'arsenal de l'Est (Chine du Nord).—*Bull. Soc. Path. Exot.* 1928. Apr. 18. Vol. 21. No. 4. pp. 295–298.

SPRUE.

Weiss (Charles). **A Review of the Recent Literature on Tropical Sprue.**—*Porto Rico Rev. of Pub. Health & Trop. Med.* 1927. Oct. Vol. 3. No. 4. pp. 150–161. [43 refs.] [School of Trop. Med., Univ. of Porto Rico.]

It is difficult to summarize this review as it consists almost entirely of a resumé of the papers already adequately reviewed in this *Bulletin*. The main portion is concerned with the exact relationship of *Monilia psilosis* to sprue and the balance of evidence would appear to be unfavourable to its acceptance. The author remarks that the finding of *M. psilosis* in the digestive tract of a few or of all cases of sprue does not prove its aëtiological relationship. For, are not *Bact. coli* and *B. subtilis* also universally present? And, can we not isolate toxins from *Bact. coli* and kill guineapigs with it by intraperitoneal and intravenous injection in massive doses?

The investigator must not lose sight of the fact that experimental moniliasis in guineapigs or pyaemia in rabbits produced by intraperitoneal injections of massive doses of living cultures of monilia is by no means equivalent to sprue in man.

P. H. Manson-Bahr.

Thaysen. Die nicht tropische Sprue. [**Non-Tropical Sprue.**]—11 pp. 8vo. [n.d.; n.p.]

After detailing cases of sprue or a sprue-like disease previously observed in Northern European countries, the author relates that in 1922 he saw his first non-tropical sprue patient, who had never been outside the confines of Europe, and in the following year three others in denizens of Copenhagen. From these and other cases recorded in Norway it can be concluded that the practical physician cannot ignore the existence of this malady. The symptomatology of non-tropical sprue is very similar to that of the tropical form. The same chronic diarrhoea, remarkable emaciation and asthenia are observable. In two cases the diarrhoea was of a truly remarkable character: the light stools measured over three litres in the twenty-four hours, were liquid, greenish-coloured and frothy—like dirty soapy water, as the patient explained. The liver dullness is considerably diminished, which is probably ascribable to the loss of fat in that organ.

Stomatitis and glossitis was noted only in two cases and then only during the acute diarrhoeic periods. In two cases the anaemia was of the pernicious type and in two others of a slighter degree. The chief distinction between non-tropical sprue and pancreatic fat-diarrhoea lies in the increased nitrogen excretion associated with the latter. It is possible that the severe anaemia and general symptoms of non-tropical sprue are due to an avitaminosis.

These cases of non-tropical sprue reacted to a milk dietary in much the same manner as true sprue; on the other hand raw fruit or raw meat was by no means so beneficial.

P. H. M-B.

Sokhey (S. S.) & Malandkar (M. A.). **Pancreatic Function in Sprue.** —*Indian Jl. Med. Res.* 1928. Apr. Vol. 15. No. 4. pp. 921–933. [18 refs.] [Haffkine Inst., Bombay.]

Following upon the work of Hamilton Fairley, F. P. Mackie, M. A. Malandkar, and others, on the analysis of fat in the faeces of sprue cases [this *Bulletin*, Vol. 23, p. 795], these workers have investigated the pancreatic function in sprue still further. The previous analysis by Cammidge has been found unreliable. The drying of faeces disturbs the relationship between fatty acids and combined fats. The inaccuracy of the method is of such magnitude as to render it useless for clinical purposes.

Saxon's method of analysis of faeces in fresh condition, without drying, was employed; all patients were on a full milk dietary. According to Fowweather's figures the criterion of fat analysis of faeces for diagnostic purposes is: (1) Any specimen in which the total fat amounts to more than 28 per cent. of the total dry matter is probably abnormal. (2) Any specimen in which the neutral fat exceeds 12 per cent. of the total dry matter or 60 per cent. of the total fat content should be suspected of showing evidence of deficient fat splitting. (3) Any specimen in which the total of split fat exceeds 20 per cent. of dry matter, or 75 per cent. of the total fat should be suspected of showing evidence of deficient fat absorption. In a series of 14 sprue cases, total fat was very much in excess in all cases but two, and neutral fat did not exceed 60 per cent. of the total fat except in one. Split fat formed 75 per cent. of the total fat. There is, therefore, no evidence of pancreatic deficiency and fat absorption seems to be defective.

As a result of this study the authors are convinced that fat analysis of the faeces in sprue does not disclose anything that is peculiar to the disease, and cannot help in diagnosis; it is therefore quite unnecessary as a routine measure. Defective fat absorption may be due simply to the hurrying along of the bowel contents. Possibly the high fat content of sprue faeces may be due to the ingestion of milk. The fat composition of faeces of 17 bed-ridden patients on a milk diet suffering from diseases other than sprue gave almost exactly the same figures.

Since it is impossible to obtain definite information of the activity of the pancreas by this method the presence of pancreatic enzymes in the duodenal contents has been determined. The examination showed that diastase, trypsin and lipase were present in normal amounts in the duodenal contents of patients suffering from sprue.

P. H. M-B.

Silverman (Daniel N.). **Sprue: Extended Studies with Especial Reference to Pancreatic Digestion.**—*Southern Med. Jl.* 1927. Oct. Vol. 20. No. 10. pp. 762–764. [School of Med., Tulane Univ., New Orleans, La.]

The four cases of sprue here recorded developed in permanent residents in Louisiana. Three of the patients presented the classical syndrome of sore mouth, anaemia, diarrhoea and loss of weight, while the fourth case was atypical. Though the cases resemble pernicious anaemia in many respects the author is insistent that the normal and hypernormal quantities of hydrochloric acid in the gastric secretion of sprue makes differentiation possible. These cases showed normal digestive activities of the pancreatic ferments as determined by analysis of the duodenal contents.

P. H. M-B.

KRJUKOFF (A.). Anämie bei Sprue. [**Anaemia in Sprue.**]—*Folia Haematologica.* 1928. Jan. Vol. 35. No. 4. pp. 329–352. [2 refs.] [Third Med. Clinic, State Central Asiatic Univ., Tashkent.]

In the anaemia of sprue the colour index is one or slightly below one. The red cells show anisocytosis with microcytes and macrocytes; poikilocytosis is usually present. The type of anaemia is normochromic with degeneration picture, in which *regeneration* phenomena, such as polychromasia and azurophilia, are wanting. The more long-standing the case, the more marked are the blood changes. In many instances under the influence of treatment the character of the anaemia alters; signs of regeneration make their appearance even in the most severe forms with a colour index of 1·4.

There can be no question that the type of sprue anaemia approximates to that of Addisonian anaemia. Macrocytosis and anisocytosis is not, however, so marked. The differential diagnosis may be very difficult, for diarrhoea may be present in Addisonian anaemia or achylia in sprue. The hyperchromic type of anaemia persists in the the former even during remissions. Without the examination of the bone marrow itself it is impossible to explain satisfactorily the hyperchromia of sprue. Sections of the blood-forming organs at autopsy are of lesser moment, as in such a long-standing disease all kinds of secondary infections, notably bowel ulcerations, come into play. The red bone marrow of the ribs can be investigated at biopsy. In all such cases the bone marrow was red and showed megaloblastic blood formation, even with a moderate anaemia of three to three and a half million red corpuscles. As a rule there is a megaloblastic reaction with the production of lymphoid erythroblasts of all sizes, including normoblasts and megaloblasts. Even in the early stages of sprue with a red cell count of four and a half millions and a colour index of 0·8 megaloblasts were demonstrated in the bone marrow at biopsy. The resistance of the erythrocytes ranges within normal limits, the minimal amount of resistance being about 48. The leucocytes are either normal in numbers or subnormal. In severe cases there may be a leucopenia of 3,000. In cases which are improving under treatment the leucocytes gradually return to normal numbers. The leucocyte formula shows invariably a rise in the lymphocytes which may reach 56 per cent. The polymorphonuclears show an Arneth index to the left. The bone marrow exhibits a myeloid reaction.

The blood serum invariably gives an indirect positive Van den Bergh reaction. This appears to be dependent upon increase of bilirubin in the duodenum, and a pathological increase of urobilin in the urine. The anaemia of sprue is haemolytic in nature.

P. H. M-B.

KRUKOW (A. N.). L'anémie dans la diarrhée de Cochinchine. [**Anaemia in Sprue.**]—*Pensée Méd. d'Usbékistane.* Tashkent. 1927. Oct. Vol. 2. No. 1. French summary p. 126. [In Russian pp. 28–36.]

Sprue anaemia is a haemolytic anaemia closely allied to that of pernicious anaemia. The changes of the red cells are degenerative in nature; in the red bone marrow a megaloblastic reaction is noted.

As regards the leucocytes, a leucopenia with a relative increase of lymphocytes and a reduction of the mononuclears and eosinophiles is a feature.

P. H. M-B.

Sokhey (S. S.), Gokhale (S. K.), Malandkar (M. A.) & Billimoria (H. S.). **Liver Function in Sprue.**—*Indian Jl. Med. Res.* 1928. Jan. Vol. 15. No. 3. pp. 553–563. [23 refs.] [Biochem. Unit, Haffkine Inst., Bombay.]

The present study was undertaken to see if modern functional tests would throw any light on the efficiency of liver in sprue. Thirteen typical cases of the disease were studied. The functional tests were as follows :—

(*a*) The laevulose tolerance test, based on the relation of the liver to carbohydrate metabolism.

(*b*) The Van den Bergh reaction, depending upon the secretion of bile by the liver.

(*c*) Nitrogen partition of blood, based on the relation of the liver to protein metabolism.

(*d*) Bromosulphalein dye test of Rosenthal and White.

All tests were carried out on each patient at one time. The patient was prepared as for glucose tolerance test, i.e., he was given no food after the evening meal. After 50 gm. of laevulose a rise in blood sugar of 18 mgm. coupled with the non-return of the curve to fasting level in 1½ hours is indicative of abnormality. Judged by the test, seven out of thirteen cases of sprue showed abnormality.

In six cases an increase of the serum bilirubin was noted, as shown by the Van den Bergh reaction, indicating an increased destruction of erythrocytes rather than defective function of the liver.

Nitrogen partition of blood.—Normally urea nitrogen constitutes 40–50 per cent. of the non-protein nitrogen content of the blood. Out of the eleven cases in which nitrogen partition was studied, four showed urea nitrogen below 40 per cent. of the non-protein nitrogen.

The dye test.—The bromosulphalein dye test is a liver function test of a type different from the other three tests. Extraction of the dye from the blood-stream depends upon the liver alone.

Out of thirteen cases tested, dye retention was observed in two cases only. Less than 5 per cent. retention is too small to be significant.

The investigation, therefore, goes to show that in sprue the liver is not affected to such an extent as to show impairment by liver function tests.

P. H. M-B.

Reed (Alfred C.) & Ash (J. E.). **Atypical Sprue.**—*Arch. Intern. Med.* 1927. Dec. 15. Vol. 40. No. 6. pp. 786–799 [3 refs.]

The diagnosis of sprue is still unsatisfactory; diagnosis based on the characteristic diarrhoea, stomatitis and afebrile course excludes many early cases which later prove to be sprue. In regard to etiology, the idea of a gastrointestinal toxin of a group type seems a logical working hypothesis.

The greater part of the paper is occupied by clinical histories of eight cases of atypical sprue, seven of which were contracted in the tropics, notably in the Philippines, though one patient resided in

Southern California. All were males between 40 and 60 years of age. Sore mouth and tongue, diarrhoea and anaemia were present in all; achlorhydria in seven. Central nerve symptoms were found in three and peripheral neuritis in two. Four patients died of the disease after a duration of 6 months to 4½ years.

In the whole group sore mouth and diarrhoea were prominent features, though these symptoms were more or less remittent; and while diarrhoea usually occurred first, the sore mouth developed early and roughly synchronized with the bouts of diarrhoea. A definite anaemia of the pernicious type was seen in all. It would appear that the sprue "toxin" affects the blood in most cases early in the disease. The majority of cases showed evidence of pancreatic deficiency in the stools. In three cases definite implication of the nervous system was noted. In one only definite and consistent nervous symptoms approached those of subacute degeneration of the cord. It is concluded as a result of this study that there exists a clinical entity, combining gastrointestinal disturbance like that of sprue, an anaemia approaching the pernicious type and nervous phenomena characteristic of subacute combined degeneration of the cord and of the peripheral nerves. Any combination of these groups may be found associated. As regards etiology, Ashford's *Monilia psilosis* was inconstant in these cases and the authors do not accept its pathogenicity as established.

[It is not clear to the reviewer why the description "atypical" is applied to what appear to have been eight very typical instances of the disease. The description of the involvement of the nervous system during life and at autopsy is vague and its exact significance doubtful.]

P. H. M-B.

Cooke (W. E.). **A Case of Haemolysis following Blood Transfusion in Sprue.**—*Irish Jl. Med. Sci.* 1927. Nov. 6th Ser. No. 23. pp. 678–680.

In blood transfusion there is always a small risk of haemolysis or of anaphylactic symptoms supervening, even when every precaution regarding compatibility has been taken.

The paper centres on the record of a serious case of sprue in which blood transfusion by the citrate method was performed. The patient was found to belong to Group 3 and a suitable donor was procured. Directly the needle was inserted into the vein and blood permitted to flow the patient showed signs of anaphylaxis with severe pain in the back, liquid diarrhoea and vomiting of white mucoid fluid. No more blood was injected. Symptoms were exacerbated by the injection of four minims of Liq. adrenalin 1 : 1,000 solution. Suppression of urine over a period of 26½ hours supervened. The first specimens of urine passed contained albumin, red blood corpuscles, haemoglobin, and hyaline and blood casts.

Subsequent and steady progress in the blood condition was maintained after this reaction so that by the 41st day the number of red cells were 4,460,000 per cmm. and the haemoglobin 85 per cent.

No explanation is forthcoming as to the cause of the anaphylaxis in this case; no departure in technique was made from that used successfully on previous occasions, while the patient had never previously had an injection of serum or protein of any sort.

Blood transfusion is now recognized as a most useful method of treatment in severe cases of sprue [*ante*, p. 59] ; it would appear that the benefit gained does not depend upon the quantity of blood injected, but on the stimulation of the blood-forming elements. When pyrexia follows transfusion the results appear to be better. The author suggests that "protein shock" treatment may be given a trial in sprue.

P. H. M-B.

BROWNE (Donovan C.). **The Effects produced in the Rabbit by Feeding Cultures of** *Monilia psilosis.*—*Proc. Soc. Experim. Biol. & Med.* 1927. June. Vol. 24. No. 9. pp. 873–875. [1 ref.] [Dept. of Path., Tulane Univ. School of Med.]

From a typical case of sprue cultures of *Monilia psilosis* were isolated both from the oral lesions and from the stools. These cultures corresponded in every manner to those described by ASHFORD. Other forms of yeast obtained from fermenting stools and not conforming culturally to the true *Monilia psilosis* were employed as culture suspensions in feeding experiments upon control animals.

Cultures of *M. psilosis* were incubated for ten days in 4 per cent. dextrose bouillon. Two rabbits injected intravenously died in approximately 24 hours and from each a pure culture of the Monilia was recovered from the heart's blood, kidneys and liver. Nine rabbits were fed with a similar culture and of these six died between the 31st and 61st day. In the majority deposits of pigment were noted in the spleen and liver. Cultures from the intestinal tract yielded growth of *M. psilosis*. Six control rabbits were treated in a similar manner except that cultures of other saccharomycetes were employed. They remained normal.

These experiments indicated that *M. psilosis* is pathogenic for rabbits when injected intravenously and when given by feeding. The clinical picture produced in animals of the feeding experiments is quite constant, although no specific syndrome corresponding to clinical sprue occurred. The only manifestations at all related to this clinical entity was loss of weight and some anaemia.

P. H. M-B.

RABE (Helen). **Diet in Tropical Sprue. With a Note on the Effect of Liver in Certain Sprue Cases.** By E. A. BAUMGARTNER.—*Clifton Med. Bull.* 1928. Apr. Vol. 14. No. 2. pp. 55–61. [5 refs.]

At Clifton Springs Sanitarium a general type of diet satisfactory to sprue patients has been tried. Most patients develop a dislike for butter, sugar and starches when they find they do not agree.

When the tray is returned by the patient with no food left, the diet is increased up to a point when the patient is satisfied. Fresh fruits are found best, but when not in season, unsweetened canned fruits are used, saccharine being employed in place of sugar. Cottage cheese is given once or twice daily, according to the amount of protein allowed for the patient.

The foods avoided are : cereals, bread, crackers, rice, navy beans, potatoes, all sugars, fried foods and all desserts.

After the patient has returned to his home, it is advisable that starches and sugars be omitted from his dietary from three to six

months. The ability to eat bread, potatoes and sugar without a relapse may be taken as a test of cure. A typical day's diet is given as follows :—

Breakfast.	grms.	*Dinner.*	grms.	*Supper.*	grms.
Orange	120	Lamb chops ...	100	Soft boiled egg ...	2
Cottage cheese ...	70	Turnips	50	Beets	50
Soft boiled egg ...	2	String beans ...	50	Cauliflower ...	100
Bacon	15	Lettuce	15	Cottage cheese ...	50
Skimmed milk ...	220	Fruit salad ...	70	Head lettuce ...	50
		Whipped cream ...	15	Celery hearts ...	50
		Strawberries 100		Fresh peaches ...	120
		Skimmed milk ...	220	Skimmed milk ...	220
Total calories ...		... 1528·7.			

On this dietary the blood picture often improves rapidly and the blood count increases by one to one and a half million red cells. In two cases of sprue with a severe anaemia of the Addisonian type liver has been given as part of the protein with favourable effect.

P. H. M-B.

Bloomfield (Arthur L.) & Wyckoff (Harry A.). **Remission in Sprue following High Liver Diet—Case Report.**—*California & Western Med.* 1927. Nov. Vol. 27. No. 5. pp. 659–660. With 1 chart. [5 refs.] [School of Med., Stanford Univ., San Francisco.]

The cause of pernicious anaemia and of sprue being at present equally obscure and these diseases being similar in several important features, it was decided to use a diet containing large amounts of liver. The patient's sprue, of average severity, was contracted in the Philippines. The diagnosis was made on the character of the diarrhoea and the buccal lesions. After three days of observation and rest in bed, he was placed on the high liver diet of Minot and Murphy. No drugs or other measures were used. There was prompt improvement. In four days the ulcers on the tongue were entirely healed ; the stools immediately became brown and less bulky and within a week were pasty. During convalescence, apart from high liver diet, and dilute hydrochloric acid with meals, no treatment was undertaken. Within three months he felt perfectly well and within two months had gained 25 lbs. The promptness and great degree of improvement after an uninterrupted downhill course for fourteen months suggest that in this instance the liver diet was the effective agent. The paper is illustrated by graphs which depict in a striking manner the decrease of the diarrhoea, increase of weight and progressive improvement of the blood.

P. H. M-B.

Zadek (Ernst.). Ueber Sprue. [**Sprue.**]—*Med. Klin.* 1928. May 18. Vol. 24. No. 20. pp. 776–777. [9 refs.] [Municipal Hosp., Charlottenburg-Westend.]

This paper makes no pretence of adding anything material to our knowledge of sprue. It describes in some detail the typical course of sprue in a German subject who contracted the infection in Hankow.

P. H. M-B.

TROPICAL DERMATOLOGY.

DES LIGNERIS (M.). **A Note on Cases of Mycetoma in Natives from the Northern Transvaal.**—*Jl. Med. Assoc. S. Africa.* 1928. Jan. 14. Vol. 2. No. 1. pp. 10–11. [8 refs.]

Ten cases (all males) have been observed by the author during the last 15 years. These included 1 pale, 7 black and 2 red varieties of the infecting organisms. Treatment by drugs given by either the mouth or intravenously was unsuccessful. Amputation was usually indicated. For some early cases and for those who refused amputation considerable improvement was produced by removal under anaesthesia of the worst affected areas, scraping away as much as could be removed by the curette, packing the open wound with iodoform gauze and subsequent energetic X-ray therapy. The histological picture varied according as the examined area contained (a) the fungus alone, or (b) a mixed bacterial infection. The endothelial and giant cells with little fibrous tissue formation in (a), and granulation tissue with numerous white cells in (b) would " seem to explain how an agent which tends to increase lymphocytic and fibroblastic reaction, as does radiotherapy, can have a beneficial effect."

W. Jenkins Oliver.

MONTPELLIER (J.) & CATANEI (A.). Formes cliniques, histologie pathologique, parasitologie et diagnostic des mycétomes observés en Algérie. [**Clinical Forms, Histology, Parasitology and Diagnosis of the Mycetomas observed in Algeria.**]—*Arch. Inst. Pasteur d'Algérie.* 1927. Dec. Vol. 5. No. 4. pp. 489–508. With 6 figs. on 3 plates & 4 text figs. [3 refs.] [Path. Anat. Lab. Faculty of Med. & Pasteur Inst., Algiers.]

Of the 12 published cases of mycetomas in Algeria, 10 were of the foot, 1 of the arm, and 1 of the jaw. They may be separated into two clinical groups : (1) circumscribed tumours ; and (2) " Madura foot," which is the commonest type. Histologically the lesions develop in three stages : (1) mycetomic nodule ; (2) mycetomic tumour ; and (3) Madura foot. The first two are due entirely to the fungus, but in the third there are also lesions due to secondary infections with bacteria.

The fungi found in the different cases are :—*Nocardia* [*Actinomyces*] *madurae* (H. Vincent 1894) in seven cases ; *Scedosporium apiospermum* (Saccardo 1911) 2 cases ; *Madurella mycetomi* (Laveran 1902) 1 case ; and *Glenospora clapieri* (Catanei 1927) in the 1 maxillary case.

The differential diagnosis of mycetomas from pseudo-mycetomas of tuberculous, syphilitic, or mixed origin is described, and chiefly depends on the presence of " grains " in true mycetomas.

P. Tate.

GUERRA (A. Reina). Mycétome actinomycosique à grains jaunes à San Salvador. [**Actinomycotic Mycetoma with Yellow Grains at San Salvador.**]—*Ann. Parasit. Humaine et Comparée.* 1927. Oct. 1. Vol. 5. No. 4. pp. 344–355. With 13 text figs.

The mycetoma involved the left foot of a man aged 65, and was of 2 years' duration. The whole foot was involved, and numerous

fistulae opened to the surface by crateriform apertures. Muscles and tendons appeared not to be attacked; but all the bones were more or less decalcified or destroyed. Numerous mammillated grains, clear yellow in colour, and 50 to 200 microns in size, were present in the lesions. They were composed of masses of fine, aseptate, non-nucleated filaments, 0·5 microns in diameter. No clubs or spores were found. Only the central zone of the grains stained with gram.

Pure cultures could not be obtained from the grains by the ordinary technique, owing to bacterial growth; but were readily obtained on medium first impregnated with a dilute solution of gentian violet. The colonies developed were 1 to 1·5 mm. in diameter, spherical or ovoid, white in colour, and formed of fine radiating hyphae. The optimum temperature for growth is 37° C. Neither gelatin nor blood serum is liquefied; and scarcely any growth takes place under anaerobic conditions.

The mycelium is composed of fine aseptate, non-nucleated hyphae 0·5 microns in diameter, which branch freely and have terminal swellings. The hyphae break up into bacilliform bodies 3–7 microns long, but no spores are formed. They stain with gram but are not acid fast. In the general characters the organism appears to be more or less intermediate between Cohnistreptothrix and Actinomyces.

Subcutaneous inoculation of guineapigs and rabbits with pus containing the grains or with cultures was negative. Scarification of the paws of guineapigs and covering the wounds with pus was positive in one case, and resulted in the formation of a tumour which contained numerous grains. These grains had clubs, unlike those developed in man.

Treatment with iodine internally and lugol externally did not prove effective, and amputation was performed.

P. Tate.

HARROLD (Charles C.). **Madura Foot in a Georgia Negro.**—*Southern Med. Jl.* 1927. Aug. Vol. 20. No. 8. pp. 654–655.

What is considered to be the first case of Madura foot with black grains occurring in a native born American, is described briefly. Partial amputation and treatment with mercurochrome has not proved curative. This case of Madura foot brings the total for the whole of America up to 22.

P. Tate.

DA FONSECA (O.) & LEAO (A. E. de Arêa). *Scedosporium apiospermum*, [*Scedosporium apiospermum*: **a Fungus causing Mycetoma in Italy** champignon producteur de mycétomes en Italie et au Brésil.—**and Brazil.**]—*C. R. Soc. Biol.* 1927. Nov. 18. Vol. 97. No. 31. pp. 1347–1348. [Oswaldo Cruz Inst., & Dermat. Clinic, Faculty of Med., Rio de Janeiro.]

Cultures of *Scedosporium apiospermum* were obtained from a case of mycetoma with few clear yellow grains about 3 mm. in diameter. Sclerotia were formed in old cultures, and three kinds of spores were developed. The spores are: (1) Pyriform conidia [aleuries] described by previous authors; (2) fusiform recurved spores borne singly and terminally; and (3) numerous chlamydospores, intercalary or terminal, and in the latter case borne singly or in chains of 5–6.

P. Tate.

Bradfield (E. W. C.) & Vasudevan (A.). **Mycetoma.**—*Indian Med. Gaz.* 1927. Nov. Vol. 62. No. 11. pp. 633–634. With 2 text figs. [Govt. Med. Hosp., Madras.]

Brief mention of a case affecting the right foot treated by excision of the great toe and tarsal bone. The case showed in addition two pea-sized nodules in the subcutaneous tissue above the right thumb and below the right malleolus. Section of the nodules showed a granuloma contained in a distinct fibrous capsule, with numerous multinucleated giant cells (not unlike myeloid cells), epitheloid and spindle cells surrounding an abscess with the fungus in its centre.

W. J. O.

Halloran (C. R.). **Mycetoma in an American Negro. Report of a Case.**—*Arch. Dermat. & Syph.* 1927. Nov. Vol. 16. No. 5. pp. 611–612. [10 refs.]

Concerns an American negro in whom the disease, of 4 years' duration involving the left foot, had commenced while he was living in Florida. Melanoid granules obtained from the pus gave cultures of a streptothrix. It is noted that only 30 cases had been reported previously in America, of which one only had been of the melanoid variety.

W. J. O.

Christopherson (J. B.). **On the Treatment of the Actinomycosis Type of Mycetoma.**—*Proc. Roy. Soc. Med.* 1928. Jan. Vol. 21. No. 3. pp. 471–474 (Sect. Trop. Dis. & Parasit. pp. 25–28). With 2 text figs.

Report of a case of actinomycosis of the parotid region, in a male aged 26 years, cured after 2½ years' treatment by potassium iodide. This was given continuously over 3 periods of 7, 6 and 5 months respectively, during the first two periods in 180 grain doses and during the third in 240 grain doses per diem. X-ray exposures were without effect, while the action of the radium treatment adopted could not be estimated by the writer.

W. J. O.

da Matta (Alfredo). *Sterigmatocystis tropicalis* n. sp. de fungo patogenico para o homem. [*Sterigmatocystis tropicalis*, **a New Species of Fungus Pathogenic for Man.**]—*Bol. Inst. Brasileiro de Sciencias.* Rio de Janeiro. 1928. Mar. 15. Vol. 3. No. 3. pp. 51–54. With 2 figs.

A labourer, 18 years of age, who worked barefoot on a plantation, was pecked by a fowl on the dorsum of the right foot. After washing the wound he returned to his work. A few days later the site became inflamed and painful to pressure. After 10 days pus appeared, the opening increased in size and, owing to the pain, he had to cease work. The ulcer continued to spread and after 10 months measured 5 cm. in diameter; the base was indurated and the surrounding tissues nodular to the touch. Scraping of the ulcer and the nodules showed the presence of a mould which belonged to the genus *Sterigmatocystis*, but differed from the known species and has been named *S. tropicalis*. Cure was obtained by the local action of sulphate of copper, starting with 0·5 gm. per cent. amd increasing to 1·5 gm. per cent. in distilled water.

H. Harold Scott.

DA FONSECA, Filho (Olympio), LEÃO (A. E. de Arêa) & PENIDO (J. C. Nogueira). [In Portuguese & English.] Mycose de typo ulcero-nodular, semel hando a esporotrichose e produzida por uma especie de cogumelo do genero *Hormodendrum*. **Ulcero-Nodular Mycosis, Similar to Sporotrichosis and caused by an** *Hormodendrum*.—*Sciencia Med.* 1927. Oct. Vol. 5. No. 10. In Portuguese. pp. 563–573. With 9 text figs. & 4 figs. on 2 plates. In English pp. 574–580.

——, —— & ——. Mycose de type ulcéro-nodulaire, semblable à la sporotrichose et produite par *Hormodendrum langeroni*.—*C. R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1772–1774. With 2 text figs. [Oswaldo Cruz Inst., Rio de Janeiro.]

The patient, a white Brazilian coachman, aged 23, suffered from ulcerative lesions on the right hand, forearm and arm. The lesions were arranged along a line running from the posterior surface of the hand to the middle of the anterior surface of the arm, and simulated sporotrichosis. The ulcers were somewhat deep, covered by granulating tissue and yellowish scabs, and surrounded by a hyperaemic and somewhat cyanotic area. With slight pressure pus could be expressed from beneath the scabs.

Pus obtained by aseptic puncture gave pure colonies of a fungus on Sabouraud's maltose agar. Young colonies are greenish, but later become darker and almost black. The surface is irregular and has many radial and concentric furrows. A grey pleomorphic down is developed. The cultural characters on various other media are briefly described. The aerial mycelium is formed of elongated, septate, branched, hyphae. The conidiophores are erect and branched or unbranched; and the branches may be formed of single cells or of several articulated cells. The terminal cells bear a number of tubercles or disjunctors, on which are borne clavate or sub-cylindrical intermediate cells which give rise distally, by transverse division, to chains of ovoid or spindle-shaped conidia, at each end of which disjunctors are present. Sometimes the conidia are bicellular. Vegetative hyphae are 2–4 microns in diameter. Intermediate cells, 7–12 by 3–4 microns. Disjunctors, 1 micron high. Conidia, 2·5–6 by 2·5–14 microns; average about 7–8 by 4–5 microns.

The fungus is considered to be a new species of *Hormodendrum* and is named *Hormodendrum langeroni*. n. sp.

P. Tate.

MONTPELLIER (J.) & CATANEI (A.). Mycose humaine due à un champignon du genre " Hormodendron : *H. Algeriensis* nov. sp.". [**Mycosis due to a New Species of** *Hormodendrum* : *H. algeriensis*.] —*Ann. Dermat. et Syph.* 1927. Nov. 6 Ser. Vol. 8. No. 11. pp. 626–635. With 5 text figs. [2 refs.]

This mycosis was of about 10 years duration and consisted of polymorphic eruptions involving the right leg and instep. Prolonged local treatment with yellow precipitate of mercury, together with injections of acetylarsan was ineffective; as was treatment with potassium iodide. Three injections of 2 cc. of Propidon led to noticeable improvement, and were followed by treatment with bismuth and mercury; nearly complete cure resulted in a few months. Six months later the patient returned with a relapse and renewed bismuth

treatment was unavailing. Subcutaneous injection of the filtrate from culture media of a fungus isolated from the lesions resulted in improvement ; but the patient left the dispensary after a short time and was lost sight of.

Histologically the lesions resembled those of sporotrichosis. A fungus was present in the form of spherical or ovoid cells 2–10 microns in diameter, rarely arranged in chains. Cultures of a fungus were obtained on Sabouraud's glucose medium, and were identified as a new species of *Hormodendrum* which is named *H. algeriensis*.

Subcutaneous inoculation of a rabbit with a culture led to the formation of a large abscess, in the pus of which the fungus was present and from which it could be recultivated. Intravenous inoculation of a pigeon and intraperitoneal inoculation of a mouse were negative.

Sporo-agglutination and fixation reaction were negative.

P. Tate.

PIJPER (Adrianus) & PULLINGER (B. Davidine). **An Outbreak of Sporotrichosis among South African Native Miners.**—*Lancet.* 1927. Oct. 29. pp. 914–915. With 2 text figs. [3 refs.]

Sporotrichosis has hitherto been unknown in South Africa. This outbreak involved 14 native miners in one mine. In 5 cases a fungus was isolated, and was identified as *Rhinocl dium beurmanni*. The other cases were diagnosed on clinical and serological grounds, and in consequence of their yielding readily to treatment with potassium iodide. High doses of potassium iodide resulted in cures in 2–3 weeks in all cases.

A " primary " sore was present in nearly all cases, in the form of a localized ulceration of the finger or shin. In 10 cases the lesions were confined to one arm, sometimes extending as high as the shoulder ; and in the other 4 cases the primary sore was on the shin, and the lesions extended up the leg.

P. Tate.

DA FONSECA, Filho (Olympio) & LEÃO (A. E. de Arêa). [In Portuguese and English.] Contribuição para o conhecimento da *Hemispora stellata*. **A Contribution to the Knowledge of** *Hemispora stellata*.—*Sciencia Med.* 1927. Oct. Vol. 5. No. 10. In Portuguese pp. 585–587. With 2 text figs. & 2 figs. on 1 plate. In English pp. 587–588.

—— & ——. Contribution à l'étude d'*Hemispora stellata*.—*C. R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1790–1792. With 2 text figs. [Oswaldo Cruz Inst., Rio de Janeiro.]

Cultures of a fungus isolated at São Paulo by Dr. J. MACIEL were identified as cultures of *Hemispora stellata*. The lesions from which the cultures were obtained appeared on the arm as suppurating subcutaneous nodules, arranged in lines which seemed to follow the course of the lymphatics. Thus, the lesions resembled those of sporotrichosis.

P. Tate.

Allison (J. Richard). **Fungus Disease of the Skin.**—*Southern Med. Jl.* 1927. Aug. Vol. 20. No. 8. pp. 604–606.

This is a short general paper on the clinical aspect of mycoses of the glabrous skin. The application of treatment for mycoses on a clinical diagnosis is advocated; and the importance of the differential diagnosis of epidermophytosis from occupational dermatoses is emphasized.

P. Tate.

Kirby-Smith (J. L.). **Trichophytosis, a Dermatological Problem in the Southern States.**—*Southern Med. Jl.* 1927. Aug. Vol. 20. No. 8. pp. 606–610. With 6 text figs.

The author found that in his practice the percentage of cases of dermatoses due to fungi was about 33·3 per cent. for ten months and increased to 45 per cent. for the three rainy months. Of the 480 cases seen, only 6 were of tinea tonsurans, all the rest involving the glabrous skin. The importance of hygienic measures in connexion with the treatment of dermatomycoses is emphasized.

P. Tate.

Acton (Hugh W.) & Panja (Ganapati). **Seborrhoeic Dermatitis or Pityriasis Capitis: a Lesion caused by the** *Malassezia ovale.*—*Indian Med. Gaz.* 1927. Nov. Vol. 62. No. 11. pp. 603–614. With 30 figs. on 8 plates and 4 coloured figs. on 2 plates. [7 refs.]

The main interest of this communication lies in the account of the mycological features of the Malassezia organism and of its cultivation. The pilo-sebaceous and sebaceous glands are described and a general account is given of the seborrhoeic affections due to invasion of the epidermis and hair follicles by the fungus. The relation of this infection to other conditions is discussed, including eczema rubra of infants, dermatitis with lichenification of the large flexures occurring in older subjects, acne keloid and the Fox-Fordyce syndrome. It is stated that "we consider that most of the so-called eczemas seen in the very young and old are primarily due to seborrhoea." [No positive evidence is put forward to support this hypothesis.] Concerning the mycology, the fungus appears in the scales as flask shaped bodies, round swollen forms, smaller coccal elements and irregular shaped mycelia. Cultures were obtained on Petroff's glycerinated medium with the addition of 0·004 per cent. gentian violet. On this medium the primary cultures appear as small dry chalky white colonies visible to the naked eye about the third day. The usually accepted treatment is described in detail, the writers wisely emphasizing the primary seat of the trouble in the scalp which requires constant attention.

W. J. O.

Delamare (G.) & Gatti (C.). Sur la piedra du Paraguay. [**The Piedra of Paraguay.**]—*Bull. Acad. Méd.* 1928. May 8. Year 92. 3rd Ser. Vol. 99. No. 19. pp. 500–503. [1 ref.] [Med. Clinic of the Faculty of Asuncion, Paraguay.]

A short account of the disease, as observed in Paraguay, notes its comparatively exceptional occurrence in women. Bathing together

with sebaceous and sweat secretion would seem to be contributing factors to the development of the affection. The nodules appear exclusively on the long hairs, about the top of the head and not on the nuchal region. Their number varies from 2 to 5 per hair and they occur as cylindrical or ovoid dark hard masses on the hair shafts, which are otherwise normal. Microscopical examination of the nodule shows a mosaic mass of refractive cellules, branching mycelium, cysts of Horta containing flagellate elements and a ground substance showing black granules. The cultural characteristics of the fungus are briefly described. The Trichosporum in question would seem to be more closely allied to *T. Hortai* than to *T. giganteum*, while clinically the condition resembles that seen in Brazil more than that of Columbia.

W. J. O.

Mitchell (James Herbert). **Need for Research in the Treatment of Epidermophytoses.**—*Jl. Amer. Med. Assoc.* 1927. Aug. 6. Vol. 89. No. 6. pp. 421–423. [31 refs.]

The author discusses in a general manner the therapeutics of dermatomycoses of the glabrous skin; and utters a warning against over-treatment, which may result in turning a mild ringworm into a chronic dermatitis. Recent methods of treatment mentioned are:—Iodine and ammoniated mercury advocated by Hauck and found to be very effective by Sachs (*Dermat. Wochnschr.* 78. 165. 1924). White (*Arch. Dermat. & Syph.* 15. 400. 1927) considers that a 2 per cent. solution of mercurochrome-220 soluble to be the most effective drug. Fontynont & Boucher (*Arch. Dermat. & Syph.* 4. 209. 1923) found that a serious infection of *Cryptococcus mena*, yielded to 0·1 gm. of methylene blue taken internally daily, and the application of a 1 per cent. solution of the same drug externally; and they also found that Ravaut's treatment (*Ann. de Dermat. et Syph.*, May, 1921) of intravenous injection of diluted compound solution of iodine was the best for infection with *Sporotrichum beurmanni*. The author finds Myers and Theines' (*Jl. Amer. Med. Assoc.*, 84, 1985–1986, 1925) alcoholic solution of cinnamon oil and thymol to be more effective than Whitfield's ointment.

P. Tate.

Murata (T.); Murata (T.), Itoh (T.) & Ogawa (K.). Ueber eine spezifische Hautkrankheit im Sarikotokagebiet in der Ostmongolei. I. Mitteilung: Klinischer Teil. [Murata.] [**A Specific Skin Disease in East Mongolia.**]—*Jl. Oriental Med.* 1928. Apr. Vol. 8. No. 4. German summary p. 63. [In Japanese.] II. Mitteilung: Pathologischer Teil [Murata, Itoh & Ogawa.] —*Ibid.* German summary p. 64. [In Japanese.] [Manchuria Med. College, Mukden.]

I. Concerns a skin affection occurring among peasants working in the damp rice fields of Sarikotoka. The condition appears as a skin rash showing marked redness and itching on the hands and legs, which eruption appears to be an independent skin affection unaccompanied by any general or prodromal symptoms and clears up as a rule in the course of 2–3 weeks after cessation of work, though it may pass over to a chronic eczema.

II. Microscopical examination of a papular lesion showed only slight degeneration of the epidermis, perivascular infiltration in the subcutis and subcutaneous fat region consisting mainly of small round cells with some polynuclear (chiefly eosinophile) leucocytes, fibroblasts and large mononuclear cells, slight degeneration of the sweat glands; no alteration in the hair papillae, hair follicles or sebaceous glands. No parasites were discovered which could have any direct relationship to the skin disease. While all other investigations gave negative results, it is hoped that these investigations, together with the observation of the onset of the affection at the beginning of the rice sowing season, may lead in the future to the explanation of the disease.

W. J. O.

DI LULLO (Orestes). El páaj. [**Páaj.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 125–136. With 2 text figs. [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio 7, 8 y 10, 1927.* pp. 17–28 & illustrations.]

"Páaj" is the Peruvian name of an eruptive disease set up by the plant *Schinopsis lorenzii* (*Anacardiaceae*). It is a regional affection occurring commonly in Santiago and the Northern districts. Another name for the disease and for the plant causing it is "quebracho." The condition is accompanied by intense itching, redness, oedema, a papular eruption and, at times, swelling and tenderness of the related lymph-glands. The whole body-surface, face, trunk and limbs, may be involved. The patient scratches himself violently, being almost frenzied by the irritation, especially at night. Furfuraceous desquamation ensues. The seasonal prevalence is that of the flowering of the plant, February to April; contact with any part of it, the leaves, flowers, branches or trunk, will cause the rash, as may apparently also the pollen, since a history of actual contact is not always elicited.

H. Harold Scott.

POLAK (H. J.). **Flit-dermatitis.**—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1928. Vol. 68. No. 2. pp. 297–298.

Proprietary products are introduced on the market as vermin killers under various names (Flit, Rids, Shelltox). They probably chiefly consist of kerosene, some also containing carbon tetrachloride or methyl salicylate. The author saw four cases of itching dermatitis, following the application of Flit. In these cases the patients had moistened their legs with the stuff in order to keep mosquitoes away instead of using the spray following the insrtuctions.

W. J. Bais.

WEHRLE (W. O.). Eine besonders renitente Art des Ulcus tropicum. [**A Very Resistant Form of Tropical Ulcer.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1928. June. Vol. 32. No. 6. pp. 324–325.

A brief account from Liberia of tropical ulcers occurring on the toes and showing a remarkable resistance to treatment. In every case numerous spirochaetes and fusiform bacilli were found. The cases all concerned children and arose through injury to the toes, usually the great toe, from striking against rocks. A sore would appear

on the point of the toe or about the edge of the nail, which became destroyed, and spread to the deeper tissues to invade the bone. With its preserved under surface and swollen oedematous edges the affected toe would have the appearance of being "scooped out," frequently with the necrotic terminal phalanx thrusting itself out from the sore. No evidence of yaws could be determined, and the administration of iodides and neosalvarsan proved ineffective. While healing with the loss of the first phalanx might occur after many months' treatment with local applications the extreme pain usually induced the patients to seek amputation of the affected digit, which treatment is recommended especially in the case of the smaller toes.

An interesting case is mentioned of an older patient whose finger became infected from a large ulcer on the leg. The finger lesion healed rapidly after removal of the nail, the application of sublimate compresses and desitin. On account of its clean and innocuous nature this last mentioned medicament is lauded by the author who has obtained very satisfactory results from its use in other cases of tropical ulcer.

W. J. O.

Gelonesi (G.). L'ulcus tropicum della Somalia. [**Ulcus tropicum in Somalia.**]—*Ann. di Med. Nav. e Colon.* 1927. Sept.-Oct. Year 33. Vol. 2. No. 3–4. pp. 140–164. With 6 text figs. [29 refs.] [Clinic, Villaggio Duca d'Abruzzi, Somali & School of Marine Hyg., Naples.]

The author is of the opinion that ulcus tropicum is not a specific form of spirochaetosis but is caused by a fusiform bacillus associated with three types of spirochaetes, and of these the bacillus is the chief pathogenic agent. The three spirochaetes he denominates Sp. monospirale, Sp. with large coils, and a treponema with close spirals. In the deeper parts of the ulcer the spirochaetes become fewer while the bacilli remain. A mixed clinical classification is presented, according to depth of ulcer of three types: 1. Superficial or cutaneous; 2. Deeper, subcutaneous or muscular; 3. Deep or bony; and according to character three more: 4. Efflorescent; 5. Fungous; 6. Ulcus sarcomatodes.

He holds that it is vain to rely upon arsenical preparations as specific for this disease. Each case needs to be treated according to the stage and character of the lesion. For the first two, irrigation and the application of antiseptics are advised, and, if the *B. fusiformis* persists, 3·5 per cent. solution of methylene blue; for the third, scraping followed by antiseptics; for the fourth nitrate of silver; for the fifth Paquelin's cautery is useful. Surgical intervention is needed for the last and in this form arsenicals are particularly contraindicated as favouring hyperplastic processes.

H. Harold Scott.

Hamilton (George R.). **Larva Migrans in Australia.** With a Note by the late E. W. Ferguson.—*Med. Jl. Australia.* 1927. Dec. 24. 14th Year. Vol. 2. No. 26. pp. 875–878. With 3 text figs.

A typical case of creeping eruption on both feet of a child who for some days beforehand had been going barefoot. Both lesions at the beginning

were thought to be fleabites, and were intensely irritable. A measurement of the longer and more sinuous track showed a course of 19·5 cm. in a term of 33 days. The skin involved in both lesions was widely and carefully excised and was examined microscopically either by dissection or in serial sections, but no trace of a foreign body of any kind was discovered.

The note appended to the report is a review of the various organisms —maggots of bot-flies, larvae of nematode worms, and mites—not to mention inanimate objects, which have been reported as causing creeping eruption of the skin in man.

A. Alcock.

White (G. F.) & Dove (W. E.). **The Causation of Creeping Eruption.** —*Jl. Amer. Med. Assoc.* 1928. May 26. Vol. 90. No. 21. pp. 1701–1704. With 7 text figs. [10 refs.]

"Creeping eruption" of the skin, once supposed to be caused solely by the migrations of Oestrid-fly larvae, is now known to be due to several other kinds of parasites, and in the present paper the third-stage larva of *Ancylostoma braziliense*, a hookworm of dog and cat, is shown to be one of them. Third-stage nematode larvae of some sort having been recovered by serial sectioning from 5 out of 48 excised "creeping" lesions, investigations for the adult form of those larvae led, after several unsuccessful experiments in other directions, to trial of larvae from faeces of dog and cat in places where creeping eruption was frequent. When these larvae were applied to the human skin creeping eruptions followed. Post mortem examinations of the dogs and cats revealed the fact that the adult forms were *A. braziliense* and *A. caninum*, of which only the former produced the characteristic lesions.

A. Alcock.

Photinos (Théodore). Presentation de deux moulages de "Creeping Disease." [**Exhibition of Two Wax Models of Creeping Disease.**] —*Bull. Soc. Française Dermat. et Syph.* 1928. Jan. No. 1. pp. 37–40. With 2 text figs.

The two moulages presented to the museum of the Saint-Louis Hospital portrayed the second case of creeping disease that has been observed in Greece. The lesions consisted of multiple well-defined filiform erythematous lines distributed over the whole abdominal wall and extending on to the thorax in front, over the left lower half of the back as far as the spinal furrow and on the right side below the scapula. They occurred most densely about the umbilicus where there was a fistula in association with an old tuberculous peritonitis. The centrifugal spread of the lesions from this area to form a network of lines and gyrate-shaped figures suggested a probable infection of multiple parasites from the alimentary tract. Unfortunately no parasites had been found, but the donor considered these to have been the larvae of Gastrophilus, basing his supposition on the clinical appearance of the distinct non-inflammatory lesions which showed no secondary infection.

W. J. O.

Todd (M. L.). **Larva Migrans.**—*Milit. Surgeon.* 1928. May. Vol. 62. No. 5. p. 642.

Note of a case occurring on the thigh after "chiggers." [No mention is made of the duration of the condition, the clinical appearance of the lesion or of any attempt to define the parasite.] "The skin was frozen with ethyl chloride, the burrow split at the advancing end with a fine galvano cautery point and the floor of the burrow cauterised. The reaction was slight and the cure instantaneous."

W. J. O.

Acton (Hugh W.). **Ainhum, a Band Scleroderma.**—*Indian Jl. Med. Res.* 1928. Apr. Vol. 15. No. 4. pp. 1085–1090. With 2 plates (1 coloured). [26 refs.]

This communication is presented in a rather unconvincing style. The lesion of ainhum is defined as "a band scleroderma causing rarefying osteitis of the phalanges." Its occurrence as a familial affection is noted and its frequent association with symmetrical palmar and plantar hyperkeratosis. A condition of hypothyroidism is suggested. In three cases the blood calcium had been found to be a great deal lower than normal, pointing to a diminution of parathyroid function. In the early stages of the disease rest in bed and the administration of large doses of thyroid (gr. ii t.d.s.) with extract parathyroid (1/20 gr.) and calcium lactate (gr. x) b.d. is sufficient to bring about an amelioration of the symptoms. In the later stages division of the constricting band may be combined with the above mentioned medicinal treatment.

W. J. O.

Sinnatamby (G. S.). **Notes on Three Cases, Rare, both from a Tropical and Clinical Point of View.**—*Jl. Ceylon Branch Brit. Med. Assoc.* 1927. Oct. Vol. 24. No. 2. pp. 162–164. With 2 figs. on 2 plates.

This communication contains a report of two cases of ainhum from Ceylon of 11 and 13 years' duration respectively. In the second case both feet were affected but in a different degree.

W. J. O.

Acton (Hugh W.). **Porokeratosis: its Causation and Treatment.**—*Indian Jl. Med. Res.* 1927. Oct. Vol. 15. No. 2. pp. 349–353. With 3 plates (2 coloured). [5 refs.] [School of Trop. Med., Calcutta.]

Eight cases are very briefly mentioned, two of these concerning brothers. The condition is considered to be a type of ichthyosis associated in some indirect way with hypofunction of the thyroid gland. Complete cure is claimed in 2–3 weeks' time by proper thyroid medication, the dosage being determined by the estimation of the basal metabolism.

W. J. O.

ROBLÈS (Rodolphe). La pseudo-lèpre ou "punudos," maladie non classée qui sévit au Guatémala. [**Pseudo-Leprosy or Punudos, an Unclassed Disease of Guatemala.**]—*Bull. Acad. Méd.* 1927. June 7. Year 91. 3rd Ser. Vol. 97. No. 23. pp. 776–780. With 3 text figs.

A short account of an incurable elephantiasic condition of the feet occurring equally in both sexes and apparently peculiar to certain villages of Guatemala. Commencing usually in childhood, about the sixth or seventh year, the disease first shows itself as an erythematous lesion about the instep of one foot, accompanied by inguinal adenitis of the corresponding side and associated with raised temperature and general malaise. The foot is slightly painful while itching is usually absent. The skin lesion and general symptoms persist for 3–6 days leaving some slight oedema of the affected foot and ankle. After an interval of some six months another similar attack occurs, to be repeated at shorter intervals and to leave increased swelling of the foot after each attack. The toes gradually develop papillomatous swellings on the dorsal surfaces, the larger growths being always towards the free end of the digits. The soft parts are alone affected, no change being observed in the bones on X-ray examination. The other foot gradually becomes involved and the condition persists throughout life. Heredity appears to play no part in the affection, contagion if any is only slight, while the disease is strictly confined to regions of a temperate climate. Although the localization of the disease suggests an infection contracted by going barefooted no parasites or bacilli have been found locally or in the blood.

W. J. O.

DA ROCHA LIMA (H.). Ueber verrugaähnliche Erkrankungen (Pseudoverrugas). [**Verruga-like Diseases (Pseudoverrugas).**]—*Abhandl. a. d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2.) [Festschrift NOCHT.] pp. 464–466. With 2 figs. on 1 plate. [7 refs.] [Inst. for Ship & Trop. Diseases, Hamburg.]

A study of verruga-like nodules occurring outside the endemic area of true verruga showed that the so-called botriomycosis, or teleangiectatic granulomata, of the skin, described by BASSEWITZ in S. Brazil, was probably an infectious and local affection of the skin, known as *Angiofibroma cutis contagiosum.*

Nevertheless, the occurrence of multiple tumours on different portions of the body betokens a universal infection and close relationship to the verruga exanthem. There is therefore a skin disease which in its clinical, macroscopic and microscopic features cannot be differentiated from true verruga.

The condition has been well-named by Afredo DA MATTA "pseudoverruga." From a village on the upper Amazon a patient was studied who exhibited multiple tumours on different parts of his body. Individual lesions were well supplied with blood and much resembled those of yaws. With the exception of headaches, digestive disturbances and slight fever, there were no signs of illness.

The microscopic structure on section much resembled in the nature and arrangement of the cells that of true verruga, but the cell-inclusions which the author originally described in verruga, cannot be made out in this tissue.

P. H. Manson-Bahr.

Käyser (J. D.). **On Some Tropical Impetigos.**—*Acta Leidensia (Scholae Med. Tropicae).* 1927. Vol. 2. pp. 111–119. [10 refs.]

This short communication gives a brief account, which does not call for any comment, of some forms of impetigo lesions observed in the tropics. Attention is drawn to the epidemic infectious nature of pemphigus contagiosus which would seem to be the same condition as impetigo bullosa observed at home. Of real value is the recommendation to avoid the application of ointments in favour of a non-irritating antiseptic lotion such as sol. sublimate 1 : 1000, or sublimate 0·5, ammon. chlor. 1, spirit 100, water 250 parts, to be followed when the skin is dry by a mild antiseptic dusting powder.

W. J. O.

Noel (P.). Psoriasis chez un Noir. [**Psoriasis in a Black Man.**]—*Ann. Dermat. et Syph.* 1928. Jan. No.1. pp. 37–42. [17 refs.]

Report of a case observed at Pondicherry, of a male aged 58 years in whom the first lesion of psoriasis had been noticed on the left leg one year before his coming under observation. There was no family history of any similar trouble ; he suffered from asthma in the rainy season. Some of the lesions showed no apparent change of colour while others were of a deeper brown tint than the healthy skin. The lesions of the nummular and gyrate-shaped variety occurred in marked symmetrical distribution on the limbs, lower half of the trunk, on the scalp and ears. He complained of no pruritus and no joint troubles. The extreme rarity of the occurrence of the disease in the black races is discussed with numerous references to the literature.

W. J. O.

Ramos e Silva (J.). Algumas observações sobre a therapia aurica do lupus erythematoso e da lepra. [**Gold Treatment of Lupus Erythematosus and of Leprosy.**]—*Brasil-Medico.* 1928. May 19. Vol. 42. No. 20. pp. 538–540. [11 refs.]

Brief notes are given of four cases of lupus erythematosus and one of leprosy of the maculo-anaesthetic type treated by gold preparations. Of the former one patient was cured, and two improved ; the fourth and the case of leprosy received no benefit.

The first was a man of 27 years with lupus erythematosus of the nose. He was given krysolgan (supragol), an amino-auro-thiophenol, at first in a dose containing 0·0001 gm. After twelve injections with increasing amounts [not stated, nor the length of the intervals] a cure appeared to be complete and only a little pigmentation remained. In all he was given 17 cgm. The second was a woman of 30 years with a similar condition. She was given 0·0005 gm. of triphal, a sodium compound of auro-thio-benzinidazol, containing about 44 per cent. of gold. At the seventh injection a dose of 0·032 gm. was reached, but this was badly tolerated and 0·025 gm. was used for the remainder of the course. Thirteen injections were given and a total of 28 cgm. Cicatrization occurred with considerable improvement. The third was given krysolgan for six injections, and then triphal, but the latter gave rise to a sensation of " pins and needles " over the whole body, so the former was reverted to. Fifteen injections were given, a total of 13 cgm. Improvement was but slight. The other cases, as already mentioned, did not reap any benefit.

H. Harold Scott.

CASAZZA (Roberto). Sui dermatoendozoi, a proposito di un nuovo parassita. (Creeping Disease e Pseudo-scabbia da "Dermolecanium migrans."). [**Pseudo-Scabies. Infection by a New Parasite,** *Dermolecanium migrans.*]—*Bol. d. Soc. Med.-Chirurg. di Pavia.* 1928. Year 42. Vol. 6. No. 3. 37 pp. With 10 figs. on 2 plates. [7 refs.] [Dermosyph. Clinic, Univ., Pavia.]

A general survey of parasitic infections of the skin with a more detailed account of two cases in which the parasites are said to have been larvae of a scale-insect (Coccidae) differing from all known species. Figures of the insect are added. A. Alcock.

DA MATTA (Alfredo). Epidermophytoses e seu tratamento.—*Brasil-Medico.* 1927. Dec. 31. Vol. 41. No. 53. pp. 1,394–1,396.

RABIES: A REVIEW OF RECENT ARTICLES. IX.*

The reports by MARIE, REMLINGER and VALLÉE which formed the basis of discussion at the first International Rabies Conference, after having been revised and in large part rewritten in the light of the discussions which took place at the various meetings, have now been published in book form by the Health Section of the League of Nations,[1] and also as a supplementary number to the *Annales de l'Institut Pasteur*, Paris,[2, 3, 4, 5, 6]. The titles of the various chapters are given below. Each chapter forms an admirable critical review of present knowledge regarding the subject under consideration. The distinguished rapporteurs are to be congratulated upon the results of their labours. Their reports form a valuable addition to the literature of rabies, and should be in the hands of all who are interested in the subject. They are written with the philosophic clarity of exposition which is characteristic of the French school. Naturally errors have crept in, as was to be expected in the verbatim reporting of so much evidence. For example, in discussing SEMPLE's method of treatment of carbolized vaccines, MARIE gives the following table, as summarizing " the principal results obtained with this method of treatment " :—

	Annual Average number of persons treated.	" Mortality percentage." (Marie).	Percentage of total deaths.
Bombay	2,875	2·12–0·11	1·17
Calcutta	About 5,000	4·7–0·5	not submitted
Shanghai	130	7·7–1·2	0·90
Coonoor (British India)	3,131	1·075–0·75	0·98
Jerusalem	858	2·5–0·60	0·64
Kasauli	4,030 (corrected 6,060)	1·76	1·16
Lwow	1,338	0·059	0
Rangoon	466	0·22	0·60
Rome	496	0·16	0·16
Shillong	1,503	0·41	0·95

1 MARIE (A. C.), REMLINGER (P.) & VALLÉE (H.). Reports to the International Rabies Conference (1927). Publications of the League of Nations. (C.31, M.16, 1928, III) (C.H. 531(1). English version. League of Nations, Publication Department, Geneva. pp. 1–164.

2 MARIE (A. C.). Sur la nature du virus rabique.—*Ann. Inst. Pasteur.* (Supplément. Conférence Internat. de la Rage [Paris, 25–29 Avril 1927]). pp. 12–35. [44 refs.]

3 MARIE (A. C.). Technique de la vaccination de l'homme après morsure. Modifications diverses apportées au traitement pastorien.—*Ann. Inst. Pasteur.* (Supplément. Conférence Internat. de la Rage [Paris, 25–29 Avril 1927]). pp. 36–70. [46 refs.]

4 REMLINGER (P.). Les paralysies du traitement antirabique.—*Ann. Inst. Pasteur.* (Supplément. Conférence Internat. de la Rage [Paris, 25–29 Avril 1927]). pp. 71–132. [103 refs.]

5 REMLINGER (P.). Les accidents locaux du traitement antirabique.—*Ann. Inst. Pasteur.* (Supplément. Conférence Internat. de la Rage [Paris, 25–29 Avril 1927]). pp. 133–143.

6 VALLÉE (H.). La vaccination antirabique chez les animaux.—*Ann. Inst. Pasteur.* (Supplément. Conférence Internat. de la Rage [Paris, 25–29 Avril 1927]). pp. 144–165. [29 refs.]

* For the eighth of this series see Vol. 25, pp. 187–199.

As some of the figures of "percentage mortality" are startling, and would convey the impression that the mortality with this method was unduly high, I have gone back to the original answers to the questionary submitted from the various institutes and circulated to members of the Conference. It appears that MARIE has tabulated, under "percentage mortality," figures relating to particular groups of cases (e.g., the figure 7·7 per cent. relating to Shanghai is the percentage mortality in a particular Group (C2) of thirteen cases, one of which developed rabies) and not to the whole. I find that the true values are as indicated in the final column. These are in agreement with those given by PRAUSNITZ, and tabulated in my last review.

It should also be noted that in the two tables relating to frequency of accidents of treatment (REMLINGER, pp. 83 and 95 of the English version published by the League of Nations, and the corresponding tables in 4) the figures described as "percentages," are in reality rates per mille.

This series of critical reviews by the rapporteurs of the various commissions, taken in conjunction with that of PRAUSNITZ (one of the co-rapporteurs of the combined commission on Methods and Accidents of Treatment), forms an excellent resumé of current views regarding the problems of rabies.

1. *Virus.* I have on frequent occasions referred to investigations which appear to show that in certain cases continued subpassage of fixed virus results in a loss of virulence, especially with regard to inoculation into the anterior chamber of the eye. Thus REMLINGER and BAILLY claim that the Tangier strain (this *Bulletin*, Vol. 24, p. 761) shows a marked mutation in its 2360th passage, PUNTONI reports a similar variation in the Rome strain. On the other hand LE FEVRE DE ARRIC and TCHANG KOUO-NGEN (this *Bulletin*, Vol. 21, p. 710), state that the Brussels strain (ex. Paris) has if anything increased in virulence. BURNET (*loc. cit.*, Vol. 22, p. 700) using the Tunis strain, BABLET (Vol. 23, p. 198) using the Saigon strain, MARIE (Vol. 23, p. 693, Vol. 24, p. 222, and Vol. 24, p. 761),using the Paris strain, PALAVANDOFF and WEINBERG (Vol. 24, p. 222), using the Odessa strain, ISABOLINSKY and ZEITLINA (Vol. 24, p. 222), using the Smolensk strain, ROCHAIX (Vol. 24, p. 761) using the Lyons strain have found no evidence of reduction of virulence. PLANTUREUX (Vol. 22, p. 700 ; 23, p. 693, and 24, p. 222) claimed that though the Algiers strain has lost virulence with regard to desiccation and to the action of glycerine, it had remained unaltered as regards intracorneal inoculation. PLANTUREUX[7] has carried out a further series of experiments on the intracorneal virulence of the Algiers virus, and now claims that a definite reduction has taken place.

In a series of three papers MANOUÉLIAN and VIALA[8], [9], [10] shed

[7] PLANTUREUX (E.). Modification du pouvoir pathogène du virus rabique fixe d'Alger, pour la chambre antérieure de l'oeil.—*C.R. Soc. Biol.* 1928. Apr. 17. Vol. 98. No. 12. pp. 935–936. [2 refs.] [Pasteur Inst., Algiers.]

[8] MANOUÉLIAN (Y.) & VIALA (J.). Cellules nerveuses et virulence des glandes salivaires.—*C.R. Acad. Sci.* 1927. Dec. 27. Vol. 185. No. 26. pp. 1623–1625.

[9] MANOUÉLIAN (Y.) & VIALA (J.). Cellules nerveuses et virulence des glandes surrénales.—*C.R. Acad. Sci.* 1928. Jan. 30. Vol. 186. No. 5. pp. 327–329.

[10] MANOUÉLIAN (Y.) & VIALA (J.). Lésions des parois de la bouche et de la langue chex les chiens enragés.—*C.R. Acad. Sci.* 1928. Apr. 30. Vol. 186. No. 18. pp. 1242–1243.

light upon the irregularities which are found in the virulence of salivary and other secretions. It is well known that in the parotid, submaxillary, sublingual, and buccal glands, neurones may be demonstrated either as single cells, or in ganglionic aggregations. These lie just under the epithelium. The cytoplasm of these neurones may contain the rabies parasite. The virulence of the gland depends upon the presence of the neurones, and the virulence of the saliva depends upon abrasions of epithelium exposing the infected neurones. The irregularity of inoculation results depends upon the presence or absence of virulent nervous material in the fragments inoculated. As the nervous material is unequally distributed, certain portions of a gland may be infective whilst others are not infective. The authors describe similar distributions of neurones in the suprarenal gland, and confirm da Costa's claim that Negri bodies may be present in the gland, but add the limitation that they only occur in the scattered neurones. They have also examined the nature of the abrasions which occur in the overlying epithelium in the buccal mucosa. These observations shed light upon the way in which the rabies virus reaches the saliva—a question which, formerly, was puzzling.

Remlinger[11] starting from the observation that it is extremely difficult to infect by rubbing in to the abraded skin a thick emulsion of brain containing street virus, and contrasting this observation with the fact that the saliva when inoculated under natural conditions is frequently found to be infective even in very minute doses, inclines to the view that the germ exists in the saliva in a different form to that in which it is present in the brain. This hypothesis is in agreement with Levaditi's view that the virus in the brain is a pansporoblast, whilst in the saliva it is in filtrable form.

Abadjieff[12] finds that rabies virus is rendered avirulent by exposure to the action of a 5 per cent. solution of Yatren (in the form of a sodium salt) for three hours at 37° C.

Takaya [13] claims that whilst both fixed and street virus are reduced in virulence by the action of ultra violet rays, the effect is greater on the latter than on the former. The immunizing properties of antirabic serum are also reduced by similar exposure.

Remlinger and Bailly[14] have failed to find any trace of local immunization (in the Besredka sense) in the case of rabies. Two experiments were carried out on nine and ten rabbits respectively. The vaccinal dose (dried cord emulsion) was introduced into one cerebral hemisphere, and the surviving animals after this treatment were tested for immunity by the administration of more active doses into the other hemisphere. All developed rabies with the same

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11 Remlinger (P.). Sur la différence d'agressivité du virus rabique dans la bave et la substance nerveuse.—*C.R. Soc. Biol.* 1928. Feb. 17. Vol. 98. No. 6. pp. 437–439.

12 Abadjieff (Boris). Ueber die Beeinflussung des Lyssavirus durch Yatren-Natrium.—*Cent. f. Bakt.* I. Abt. Orig. 1928. May 14. Vol. 107. No. 4-5. pp. 202–205. ["Robert Koch" Inst., Berlin.]

13 Takaya (J.). The Influence of the Ultra-Violet Ray on the Immune-Body of Rabies.—*Oriental Jl. Dis. Infants.* 1928. Jan. Vol. 3. No. 1. English summary p. 17. [In Japanese.] [Children's Clinic, Imperial Univ., Kyoto.]

14 Remlinger (P.) & Bailly (J.). Echec de la vaccination locale cérébrale dans la rage.—*C.R. Soc. Biol.* 1928. Apr. 27. Vol. 98. No. 13. pp. 1117–1119. [2 refs.] [Pasteur Inst. of Morocco, Tangiers.]

incubation periods as untreated controls. A further experiment using ether vaccine gave similar negative results.

On the other hand MARIE and MUTERMILCH[15] claim to have obtained local immunity by vaccination both by the subdural and by the intra-ocular routes. As the test employed was a subdural injection of fixed virus, the immunity which they claim to have established would have to be of a very high order. The brains of animals which succumbed showed either dimimution or absence of virulence. They also found that the aqueous humour of animals vaccinated intra-ocularly, as well as the cerebro-spinal fluid of those vaccinated subdurally, contained antibodies. The argument is brought forward that the local immunities developed would appear to depend upon secretions from the ciliary body, or the choroid plexus as the case might be. The authors admit that their immunization results were somewhat inconstant.

ii. *Clinical.* GREEN[16] reports a case of rabies from Central Kavirondo in which paralysis of both legs was a prominent symptom, and GLUSMANN[17] describes a peculiar instance, in which the patient —a doctor—had been an invalid and under close observation over a period of three years. He was bedridden and suffered from progressive ankylosis of the spine. There was no history of contact with any animal likely to convey infection. He died under conditions which suggested a diagnosis of rabies. The diagnosis was confirmed by animal experiment.

iii. *Pathology.* NICOLAU and MATEIESCO[18] as a result of experiments on rabbits in which, after section of the sciatic nerve, a dose of street virus was administered subdurally, found that the distal portion of the sciatic nerve remained avirulent, thus confirming BABES' original experiments, and showing that the centrifugal dissemination of the virus is confined to the nerve paths.

TCHECHKOW[19] presents further evidence in favour of the view that the virus is diffused through the central nervous system by the cerebro-spinal fluid. The communication of PONOMAREW and TCHECHKOW[20] which I summarized in my previous report (*ante* p. 191), appears again in another journal.

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15 MARIE (A. C.) & MUTERMILCH (S.). Nouveaux essais de vaccination contre la rage.—*C.R. Soc. Biol.* 1928. May 18. Vol. 98. No. 15. pp. 1314–1315. [2 refs.] [Pasteur Inst., Paris.]

16 GREEN (F. N.). A Case of Hydrophobia in Central Kavirondo.—*Kenya & East African Med. Jl.* 1928. Feb. Vol. 4. No. 11. pp. 353–354.

17 GLUSMANN (M.). Ein seltener Fall von Tollwut.—*Ztschr. f. Hyg. u. Infektionskr.* 1928. Apr. 30. Vol. 108. No. 3. pp. 588–593. [Charkow Bact. Inst., & "Robert Koch" Inst., Berlin.]

18 NICOLAU (S.) & MATEIESCO (E.). Septinévrites à virus rabique des rues. Preuves de la marche centrifuge du virus dans les nerfs périphériques des lapins.—*C.R. Acad. Sci.* 1928. Apr. 16. Vol. 186. No. 16. pp. 1072–1074. [5 refs.]

19 TCHECHKOW (A. M.). Du rôle du liquide céphalorachidien dans le mécanisme du développement de la rage.—*Arch. Sci. Biol.* 1927. Vol. 27. No. 4–5. French summary pp. 398–399. [In Russian pp. 307–322. With 5 figs.] [Inst. of Exper. Med., Leningrad.]

20 PONOMAREW (A. W.) & TCHECHKOW (A. M.). Sur quelques conditions de l'action du sérum antirabique dans l'organisme.—*Arch. Sci. Biol.* 1927. Vol. 27. No. 4–5. French. summary p. 399. [In Russian pp. 323–336. 11 refs.] [Inst. of Exper Med., Leningrad.]

Takaya [21-22] reports observations on the blood picture after intramuscular and intraspinal infection by fixed virus, and finds that with the Arneth method there is a deviation to the left.

Jonnesco [23] inoculated five rabbits with the urine of a patient who died of rabies, and succeeded in infecting two of these, thus confirming Bouchard's observations.

iv. *Diagnosis.* According to Galli-Valerio[24] the symptoms of rabies may be simulated by affections due to various animal and vegetable parasites. Cases are cited in which a variety of these were incriminated. The author suggests that if parasites are found on post mortem examination, in the absence of Negri bodies, a negative diagnosis may in certain instances be immediately arrived at, thus avoiding the delay which an animal test necessitates.

Using cooked antigens and glycerine extracts as recommended by Kraus and Michalka (this *Bulletin*, Vol. 24, p. 224) Glusmann and Solowjowa[25] have been unable to demonstrate a specific deviation of complement. Antigens prepared from normal and infected brains react equally. Imig[26] using the same antigens, was unable to demonstrate a difference in deviation, using on the one hand the sera of rabbits treated with fixed virus, and on the other those of rabbits treated with normal brain substance. The same negative results were observed in the case of Borna's disease.

v. *Methods of Treatment.* Remlinger [27] suggests as a standard method of treatment the use on the earlier days of treatment of cords which have been kept in glycerine in the ice-chest for 25–30 days, and in the later of cords which have been kept for shorter periods. The reason for this procedure depends upon the observation that whilst the Tangier strain of fixed virus maintains its virulence up to 24–25 days, and then shows a brusque decline, its vaccinal power remains. Thus even after being kept for more than 25 days it is able to confer a solid immunity, though it cannot convey infection. The method which Remlinger describes has been in use in Smolensk

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21 Takaya (J.). Experimental Studies of Rabies (Fourth Report). The Influence of Fixed Poison upon the Blood-Finding when injected Intraspinally.—*Oriental Jl. Dis. Infants.* 1928. Mar. Vol. 3. No. 2. English summary p. 32. [In Japanese.] [Children's Clinic, Imperial Univ., Kyoto.]

22 Takaya (J.). Experimental Studies on Rabies (Fifth Report). The Influence of Fixed Poison on the Blood-Findings into the Muscles.—*Oriental Jl. Dis. Infants.* 1928. Mar. Vol. 3. No. 2. English summary p. 32. [In Japanese.] [Children's Clinic, Imperial Univ., Kyoto.]

23 Jonnesco (Démètre). Virulence de l'urine dans la rage humaine.—*C.R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1731–1733. [1 ref.] [V. Babès Inst., Bucharest.]

24 Galli-Valerio (B.). Symptômes rabiformes non rabiques chez les carnassiers.—*Schweiz. Arch. f. Tierheilk.* 1928. Feb. Vol. 70. No. 2. pp. 72–76. [6 refs.] [Inst. of Hyg. & Parasit. Univ., Lausanne.]

25 Glusmann (M.) & Solowjowa (J.). Ueber den diagnostischen Wert der Komplementbindungsreaktion bei Lyssa.—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1927. Dec. 31. Vol. 54. No. 2. pp. 199–204. [7 refs.] [Bact. Inst., Karkov.]

26 Imig (Fritz). Die Verwertbarkeit der Komplementbindungsreaktion zur Diagnose der Bornaschen Krankheit und der Tollwut.—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1928. Mar. 27. Vol. 55. No. 3–4. pp. 403–421. [9 refs.]

27 Remlinger (P.). Sur la vaccination antirabique au moyen de moelles glycérinées fraîches (méthode de Calmette-Remlinger).—*Bull. Soc. Path. Exot.* 1927. Nov. 9. Vol. 20. No. 9. pp. 843–846. [3 refs.] [Pasteur Inst., Morocco.]

(Isabolinsky and Zeitlin, this *Bulletin*, Vol. 23, p. 691), since 1925. In all, 3,500 persons have been treated, and amongst these five deaths were reported. This is a low mortality for Russia, where bites are severe.

Glusmann, Kowalewa and Predtetschenskaja[28] contrast the Högyes-Phillips and the Fermi methods. Of 17 rabbits treated by the former method eight contracted rabies and, in the case of three of the eight, fixed virus was proved by further experiment to be present in the brain. The animals died either during the period of treatment or shortly after. In a second series of twenty-one rabbits treated with Fermi's vaccine, three deaths from rabies were observed. It is claimed that subsequent testing of the surviving animals showed that the latter vaccine was at least as potent in producing immunity as the former.

In a second communication Glusmann and Schmidt-Weyland[29] report further experiments on the effects of immunization by Fermi's method. From their observations the authors conclude that Fermi's vaccine is not harmful when injected subcutaneously into rabbits and guineapigs, but may be infective in the case of dogs.

Remlinger and Bailly[30] report the results of experiments in which local immunization was employed; i.e., emulsions of glycerinated cords and of ether vaccines were rubbed on to the abraded skin. It appeared that eight or more frictional doses were necessary for the production of immunity. Of forty-eight guineapigs treated by this method with eight inunctions, nine contracted rabies (19 per cent.), whilst of forty-six control animals twenty-six developed the disease (56 per cent.).

Sanarelli[31] discusses treatment by the Italian and Sardinian methods. Fermi [32] points out that in describing the Sardinian method Sanarelli has in reality detailed Semple's modification of it, according to which the virus is killed by heating at 37° for 24 hours. Fermi cites the following experimental results, in favour of his own method.

Method.	Percentage saved.	Animals.	Number employed.
Fermi	75–100...	Dogs	17
Semple	40– 60...	,,	
Fermi	50 ...	Rabbits	16
Semple	25– 40...	,,	
Fermi	100...	White rats	178
Semple	60...	,,	

[28] Glusmann (M.), Kowalewa (O.) & Predtetschenskaja (L.). Zur Frage der Unschädlichkeit des Virus fixe bei subcutaner Injektion.—*Ztschr. f. Hyg. u. Infektionskr.* 1928. Jan. 30. Vol. 108. No. 2. pp. 426–438. [9 refs.] [Bact. Inst., Charkow.]

[29] Glusmann (M.) & Schmidt-Weyland (P.). Zur Frage der Unschädlichkeit des Virus fixe bei subcutaner Injektion. II. Mitteilung.—*Ztschr. f. Hyg. u. Infektionskr.* 1928. Apr. 30. Vol. 108. No. 3. pp. 594–604. [3 refs.] ["Robert Koch" Inst., Berlin.]

[30] Remlinger (P.) & Bailly (J.). La vaccination locale dans la rage.—*Ann. Inst. Pasteur.* 1928. Apr. Vol. 42. No. 4. pp. 349–355. [6 refs.]

[31] Sanarelli (José). Tratamiento de la rabia por el método italiano de las vacunas fenicadas.—*Semana Méd.* 1927. Nov. 24. Vol. 34. No. 47 (1767). pp. 1421-1423.

[32] Fermi (Claudio). Tratamiento de la rabia por el método italiano de las vacunas fenicadas. Rectificación al Profesor D. José Sanarelli.—*Semana Méd.* 1928. Mar. 29. Vol. 35. No. 13. pp. 805–807.

This table summarizes the results of 16 experiments. The point is of importance and should be settled once and for all by a single experiment on a large scale.

Schaburow[33] has employed anti-rabic serum (the titre of which was such that 1 cc. of a 1 per cent. emulsion of fixed virus was rendered avirulent by 0·17 cc. of the serum), in the case of persons severely bitten by wolves. Fifty persons, so bitten, were treated in the ordinary way, but on the first three days they received in addition 5–10 cc. of anti-rabic serum. Of these two died, or 4 per cent.—a rate which was lower than was found in the case of persons to whom vaccinal treatment alone had been administered.

vi. *Statistics.*

Ouchakow[34] states that during the year 1926, 4,140 persons received anti-rabic treatment at Leningrad. Of these 2,150 were definitely "at risk." Three deaths occurred (0·14 per cent.) and one of these was a "failure." The treatment employed in the beginning of the year was the dried cord method, but in April the method of Fermi was substituted. One case of paralytic accident is reported (treated with Fermi's vaccine). During the year Fermi's vaccine was distributed to nine dispensaries. This was used in the treatment of 2,930 persons, and gave a mortality rate of 0·1 per cent.

Hempt[35] reports from Novi-Sad (Yugoslavia) that during the year 1926, 3,059 patients were treated, of whom four died of rabies (0·13 per cent.). The vaccine used had been rendered completely avirulent by exposure to ether. He reiterates his opinion that whilst vaccine kept in ether for 72 hours is harmless to normal persons, it may not be so in exceptional cases, and in particular in the case of persons suffering from some pre-existing nervous affection. For this reason since 1925 he has only used avirulent vaccines. He finds that these are of equal value as regards their immunizing properties, and have the advantage that they can be used without risk in neuropathic cases. Full details of schemes of dosage are given.

McKendrick[36] summarizes evidence obtained from cases treated at Kasauli (India) from 1900 to 1925. The statistics show that as good results were obtained by the use of carbolized vaccines (mortality 1·16 per cent. in 84,844 cases) as with either dried cords (mortality 1·81 per cent. in 5,141 cases) or dilutions of fresh nerve substance (mortality 1·61 per cent. in 8,435 cases). The relatively high mortalities in Indian statistics are shown to be due to the greater degree of risk run by the Indian. As compared with the European the Indian is more

33 Schaburow (A.). Materiale zur Frage ueber die Simultanmethode der antirabischen Kur.—*Rev. Microbiol. et Epidémiol.* 1927. Vol. 6. No. 4. German summary p. 475. [In Russian pp. 420–422.] [Veter. Bact. Inst., Saratov.]

34 Ouchakow (W. G.). Service antirabique de l'Institut de la Médecine Expérimentale. Rapport annuel pour l'année 1926.—*Arch. Sci. Biol.* 1927. Vol. 27. No. 4–5. French summary p. 397. [In Russian pp. 297–306.] [Inst. of Exper. Med., Leningrad.]

35 Hempt (Adolph). Bericht ueber die Tätigkeit der Wutschutzabteilung des Staatlichen Hygienischen Institutes zu Novi-Sad (Jugoslawien) im Jahre 1926, nebst Mitteilungen ueber den derzeitigen Stand des daselbst geübten abgekürzten Wutschutz-Impfverfahrens.—*Seuchenbekämpfung.* Vienna. 1927. Vol. 4. No. 4. pp. 204–210; 1928. Vol. 5. No. 1. pp. 57–62. With 1 text fig.

36 McKendrick (A. G.). Antirabic Treatment in India. A Statistical Study of Methods of Pasteurian Treatment.—*Cent. f. Bakt.* I. Abt. Orig. 1928. Vol. 106. pp. 104–110. [Lab., Royal College of Physicians, Edinburgh.]

severely bitten, is more frequently bitten on the bare skin (73 per cent.) and more frequently arrives late for treatment (40 per cent. more than one week late). The mortality amongst 10,834 European patients treated by the three methods, were: dried cords 0·41 per cent., Högyes 0·42 per cent., Semple's vaccine 0·40 per cent. From a closer analysis of figures relating to 20,000 Indian patients, the following conclusions are arrived at. (1) The chance of infection increases with the number of tooth marks. (2) A deep bite is about five times as dangerous as a superficial bite. (3) Interposition of clothing reduces the mortality in the ratio of 6·6 to 1, cauterization in the ratio of 4 to 3. (4) The length of the incubation period is not affected either by number of bites, depth of bite, interposition of clothing or cauterization, and is thus independent of the effective dose. (5) The benefit of treatment, as indicated by the advantage of early arrival is demonstrated in cases whose periods of incubation are relatively short (head and arm bites) both by a reduction in mortality, and by a lengthening of the incubation period. (6) The period of incubation is primarily dependent on the site of inoculation (head : 27 days, arm : 32 days, leg : 64 days) : it is independent of the magnitude of the effective dose : it is prolonged as a result of pasteurian treatment.

vii. *Paralytic Accidents.*

Remlinger[37] draws attention to the fact that the paralytic accidents which occur when Högyes method is employed have a higher mortality than those with dried cords. This point was emphasized at the Rabies Conference by Pfeiffer, Neufeld, Hempt, and McKendrick, who presented evidence that dilutions of fresh living virus may in exceptional cases convey rabies, and has already been referred to (this *Bulletin*, Vol. 25, p. 188). He deals in a second paper with Bailly[38] with the experimental aspects of this question. As the results of certain observations they suggest that in order to determine whether street or fixed virus is present, in addition to differentiation by the presence or absence of Negri bodies, both subdural and intra-ocular inoculation into rabbits should be performed. This suggestion depends upon the fact that fixed virus is adapted to nervous tissue, whilst (in the case of the Tangier virus) it appears to have lost its infectivity when introduced intra-ocularly.

Burnet[39] reports experiments designed to test whether intensive treatment with glycerinated nerve material may cause paralytic accidents. No paralyses were observed in 10 rabbits which had received 80 injections of 15 mgm. each of fixed virus brain, but one out of 10, which had received a similar treatment with normal brain substance, developed paralysis.

Quast's observation (this *Bulletin*, Vol. 23, p. 693) that he had been able to demonstrate the presence of fixed virus in the brain of a patient

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[37] Remlinger (P.). Sur la fréquence et la gravité des paralysies susceptibles d'apparaître au cours du traitement antirabique par la méthode d'Högyes. —*C.R. Soc. Biol.* 1928. Jan. 20. Vol. 98. No. 2. pp. 103–105. [8 refs.]

[38] Remlinger (P.) & Bailly (J.). Est-il possible de déceler, dans un cerveau rabique, l'existence simultanée du virus de rue et du virus fixe?—*C.R. Soc. Biol.* 1928. Mar. 2. Vol. 98. No. 8. pp. 569–571. [2 refs.] [Pasteur Inst. of Morocco, Tangiers.]

[39] Burnet (Et.). Traitement antirabique intensif chez le lapin. Absence de virus fixe dans les centres nerveux et rareté des accidents paralytiques. —*C.R. Soc. Biol.* 1928. Feb. 10. Vol. 98. No. 5. pp. 359–360 [2 refs.] [Pasteur Inst., Tunis.]

who died of tuberculous meningitis, during the course of treatment by Phillip's method, without showing any symptoms of rabies, and his subsequent observation that fixed virus was found in the brains of two out of three dogs which had been similarly treated, have aroused considerable attention. These experiments have been repeated by SCHWEINBURG, by NEUFELD and by REMLINGER, (this *Bulletin*, Vol. 24, p. 764) and in no case have QUAST's results been confirmed. QUAST and ROTTER[40] now present further evidence. They treated eleven dogs in the usual manner with Phillip's vaccine ; one developed rabies. The surviving ten healthy dogs, which showed no symptoms of rabies, were killed, and their brains tested by animal experiment. Fixed virus was present in one of these. Thus in the brains of one out of ten healthy dogs (or 3 out of 13 in QUAST's whole experience) the presence of fixed virus was demonstrable. It would thus appear that it is no longer possible to conclude with REMLINGER that " if an individual succumbs with paralytic symptoms during the course of his treatment and if the presence of fixed virus is demonstrated in his brain by means of inoculation into the rabbit, it is justifiable to attribute such a death to fixed virus."

viii. *Miscellaneous.*

BROSCH[41] suggests that mice and rats should be used for diagnostic purposes. BASSET and LABORDERIE[42] describe a case of rabies in a mule, in which paralysis of the lower jaw was a prominent symptom. PUNTONI[43] draws attention to the frequent occurrence of gastro-intestinal symptoms in experimental animals and in dogs. The post-mortem appearances are those of congestion of the same intensity as is observed in the salivary glands and in the pancreas. By short circuiting a loop of bowel he was able to demonstrate an elimination of virus from the mucous membrane, similar to that from the salivary glands. He concludes that the virus may be eliminated from all digestive surfaces as well as from the various alimentary glands.

HERRMANN[44] quotes experiments from which he concludes that a single subcutaneous or intra-muscular dose of fresh fixed virus, as large as it is safe to use without running the risk of conveying infection, fails to give adequate protection. With his 58–60° carbolized vaccine he obtained as good protection as with fresh virus, but a single dose was not sufficient to protect against a subdural test.

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40 QUAST (Gerhard) & ROTTER (Rudolf). Ueber das Vorkommen von Virus fixe im Gehirn wutschutzgeimpfter Hunde.—*Cent. f. Bakt.* I. Abt. Orig. 1928. Vol. 106. pp. 313–325. With 7 text figs. [16 refs.] [Hyg. Inst. & Psychiat & Nerve Clinic, Univ., Breslau.]

41 BROSCH (Jos.). Ueber das Verhalten der Muriden nach Lyssainfektion unter besonderer Berücksichtigung der Brauchbarkeit dieser Tierarten für den diagnostischen Tierversuch.—*Cent. f. Bakt.* I. Abt. Orig. 1928. Jan 16. Vol. 105. No. 4–5. pp. 192–200. With 7 figs. (4 coloured) on 2 plates. [15 refs.] [Federal Inst. for Animal Disease Prevention, Mödling, near Vienna.]

42 BASSET (J.) & LABORDERIE. Rage chez un mulet. Observations sur le diagnostic expérimental de la rage.—*Rev. Vét.* 1928. Feb. Vol. 80. pp. 76–85. With 3 text figs.

43 PUNTONI (Vittorio). L'eliminazione del virus rabico per le vie digerenti e le lesioni gastro-enteriche nella rabbia.—*Ann. d'Igiene.* 1928. Jan. Vol. 38. No. 1. pp. 1–22. [15 refs.]

44 HERRMANN (Otto). Ueber einmalige obligatorische Schutzimpfung der Hunde gegen Tollwut.—*Cent. f. Bakt.* I. Abt. Orig. 1928. Apr. 18. Vol. 107. No. 1–3. pp. 84–94. [25 refs.] [State Inst. of Med. Instruction & Central Malaria Station, Kasan, Korea.]

THOMAS[45] in discussing the prevalence of rabies in Haiti, states that the cheapest and most efficient method of killing stray dogs is to connect the exhaust pipe of an automobile with an air-tight box in which the animal is placed. SHORE[46] considers that the elimination of rabies from the United States of America is not an insurmountable problem, and that immediate measures should be taken with this object.

PICKENS and REED[47] state that as the result of enquiries in all the forty-nine of the United States of America it appears that a total of ninety-one cases was reported in 1926 (Oklahoma : 20, Tennessee : 19, Louisiana : 10, Kansas : 8). Compulsory vaccination is enforced in three states. RICE and BEATTY[48] deal with the same set of enquiries.

A. G. McKendrick.

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[45] THOMAS (G. C.). Rabies in Haiti.—*U.S. Nav. Med. Bull.* 1928. Apr. Vol. 26. No. 2. pp. 315–320.

[46] SHORE (C. A.). Rabies an Unnecessary Disease.—*Southern Med. Jl.* 1928. May. Vol. 21. No. 5. pp. 397–399.

[47] PICKENS (E. M.) & REED (R. C.). A Résumé of the Laws and Regulations for the Control of Rabies, together with Data on the Prevalence of the Disease in the Different States.—*Cornell Vet.* 1927. Oct. Vol. 17. No. 4. pp. 386–400. [Dept. of Bact., Univ. of Maryland, College Park, Md.]

[48] RICE (Thurman B.) & BEATTY (Norman). The Prevalence of Rabies in the United States and the World.—*Amer. Jl. Public Health.* 1928. Apr. Vol. 18. No. 4. pp. 421–428. With 6 text figs. (2 maps). [4 refs.]

MIYAGAWA (Yoneji) & ISHII (Shintaro). On the Influence of the Constituents of Central Nerve Cells perenterally injected on the Living Organism. (The First Report) Parts I, II & III.—*Japan Med. World.* 1927. Aug. 15, Sept. 15 & Oct. 15. Vol. 7. Nos. 8, 9 & 10. pp. 225–233 ; 266–274 ; 296–301. [24 refs.] [Govt. Inst. for Infect. Diseases, Imperial Univ., Tokyo.] [This *Bulletin*, Vol. 25, p. 195.]

REMLINGER (P.). Est-il possible de standardiser le traitement antirabique ? —*Rev. d'Hyg. et de Méd. Préventive.* 1928. Mar. Vol. 50. No. 3. pp. 186–192. [2 refs.] [This *Bulletin*, Vol. 25, p. 187.]

PLANTUREUX (E.). Vaccin antirabique formolé nouvelle méthode, simple et pratique, de vaccination préventive des chiens contre la rage.—*Arch. Inst. Pasteur d'Algérie.* 1927. Dec. Vol. 5. No. 4. pp. 475–480. [5 refs.] [Pasteur Inst., Algiers.] [This *Bulletin*, Vol. 25, p. 195.]

MEDICAL ZOOLOGY.

FAUST (Ernest Carroll). **The Future for Parasitology in China.**—*China Med. Jl.* 1928. Mar. Vol. 42. No. 3. pp. 180–187. [Peking Union Med. College, Peking, China.]

The author discusses the eight most important animal parasites in human pathology in China, in each case reviewing the progress of knowledge and indicating apt lines of further investigation. Of malaria very little is known beyond that it is more or less pandemic in China, except in the north-west ; so that the entire field of inquiry antecedent to control is open. Amoebiasis is known to be common throughout China, with a great preponderance of carrier-cases in the north ; the factors responsible for this uneven incidence of acute cases, the clinical significance of the carrier-case, the pathogenous significance to man of pig and cat carriers of the amoeba, are questions still to be settled. Kala azar is known to be restricted to a belt north of the Yangtse-kiang ; the explanation of this restriction, the possible existence of a natural reservoir of infection, the exact method of transmission to man, are matters that require investigation. Although the distribution of Oriental schistosomiasis and the life-cycle of *S. japonicum* are well known, further study is desirable of the distribution of the molluscan intermediary host, of the methods by which eggs passed in faeces reach the vicinity of that host, of the possible existence of reservoir hosts, of feasible methods of local control, and of therapeusis. Of Clonorchis infection it is known that in man it is acquired, almost without exception, in two prefectures of the Kwangtung Province, and can be avoided by abstinence from raw or insufficiently-cooked freshwater fishes, and also that sterilization of nightsoil will kill the unhatched larvae ; but the practical and inexpensive application of the last item of knowledge is open to study, as also is the therapeutic aspect of this infection. *Fasciolopsis buski* is a widespread infestation of man and pig south of the Yangtse basin, and the fundamental stages of its life-cycle are known ; the exact relation between porcine and human cases, and the possibility of the dog as a reservoir host are questions for study ; also further and more comprehensive study is needed of the possible modes of infection. Hookworm in China seems to have been so fully investigated that the sterilization of night-soil by ammonium sulphate, which is mortal to eggs in night-soil mixtures in 24 hours, can be recommended as a principle of control to be developed practically in places where hookworm is prevalent. The Filariasis problems that the author suggests for further investigation are, the migration-route in the human host, the meaning of periodicity, and the actual relation of the adult worms to elephantiasis.

In conclusion the author recommends the domestic animals to the attention of the parasitologist, and particularly the dog and the cat. He knows nothing in the world like the filthy, verminous, omnivorous pariah dog of China as a delightful object of attentive parasitological study ; no higher recommendation of the creature surely can be given than that it frequently is infested with ascarids and hookworms before birth. Then besides pigs, cattle, sheep, and goats, there are camels, horses, donkeys, and mules, all of which are slaughtered for food in Northern China, and can therefore be examined conveniently. Furthermore there is a great variety of wild game brought to market with the

viscera all intact. The extent and variety of the field is such that the author considers it to be almost beyond the visual powers of a specialist in human parasitology.

A. Alcock.

Schilling (Claus). Heilung und Immunitaet bei Protozoënkrankheiten. [**Recovery and Immunity in Protozoal Diseases.**]—*Deut. Med. Woch.* 1927. Sept. 9. Vol. 53. No. 37. pp. 1543–1545.

The facts discussed in this paper are familiar and the argument moves about them in well-beaten tracks, appearing to favour the conclusion that a specific protozoan immunity depends upon the long-persistence in a greatly diminished degree (latency, premunition) of the original infection and would cease if the infection were entirely and conclusively eradicated.

A. A.

Meleney (Henry Edmund). **The Teaching of Medical Parasitology.**—*Jl. Amer. Med. Assoc.* 1928. Apr. 14. Vol. 90. No. 15. pp. 1188–1189. [Vanderbilt Univ. School of Med., Nashville, Tenn.]

Whoso teaches medical parasitology must be a first-class zoologist (invertebrata) and no mean clinician, and since the two qualifications are now not likely to be combined in one individual the course had better be conducted by a zoologist and a clinician in co-operation. The course should come in the third year of the curriculum; for if it be placed among the preliminary scientific studies the student may have forgotten his zoology before he encounters the parasites in pathology. The subject should be taught as a course—of 75 to 100 hours—on parasitic diseases; and as each parasite is studied in its biological aspects the disease attributable to it should be studied in its pathological, clinical and preventive aspects. Parasites of the lower animals may be introduced wherever they assist in simplifying studies. An attempt has been made to apply these principles in the course on parasitic diseases at the Peking Union Medical College.

A. A.

Kessel (John F.). **Host-Parasite Relationships of Certain Intestinal Protozoa Important to Medical Zoology.**—*Jl. Amer. Med. Assoc.* 1928. Apr. 7. Vol. 90. No. 14. pp. 1089–1092. [24 refs.]

The author judiciously dissents from the uncritical assumption that the relations between a host and its intestinal protozoan parasites are always rigidly specific; it is probable that they sometimes are so, but they cannot be admitted to be so until the parasite has been studied culturally and in the results of experimental cross-infestation. The author himself has established the following transferences from one species of host to another: *E. dysenteriae* and *E. coli* and *Endolimax nana* of man to white rat, monkey, and pig. Iodamoeba of man to monkey and white rat. Dysentery amoeba of monkey to pig. Chilomastix of man to monkey and pig. Trichomonas of man to monkey. Trichomonas of man and of monkey and of pig and *Trichomonas parva* of white rat all to kittens. In his experimental studies of amoebiasis in kittens identical gross and microscopic phenomena were produced in the kitten by dysentery amoeba from the following different

sources: monkey direct, pig direct, pig viâ monkey, man viâ pig. His few attempts to transfer Giardia of men to monkeys and pigs and kittens have been unsuccessful, so far. The author discusses his own experiments and the observations of other workers.

A. A.

HEGNER (Robert). **Clinical Diagnosis of Human Intestinal Protozoa.**—*Internat. Clinics.* 1927. Vol. 4. Ser. 37. pp. 159–174. With 31 figs. on 3 plates. [30 refs.]

A concise and critical conspectus of the subject, including besides a catalogue of species and a clear figure of each with a statement of its particular location and its character—whether definitely pathogenous or not—an explicit account of classical methods of collection and manipulation of material and of cultivation and differential diagnosis of species.

A. A.

DA CUNHA (A. Marques). Protozoarios intestinaes das creanças no Rio de Janeiro. [**Intestinal Protozoal Infections in Children in Rio de Janeiro.**]—*Sciencia Med.* 1928. Mar. Vol. 6. No. 3. pp. 103–109.

Of faeces from 805 individuals, 21·73 per cent. were found infected with Protozoa, by single examinations. The stools were sent for evidence of helminthic ova, or on account of obscure intestinal disturbance ; most were examined in saline, some with iodine, and a few by iron-haematoxylin staining. The following species and percentages are noted : Giardia, 12·17 per cent. ; *E. coli* 7·08 ; Chilomastix 2·48 ; the vegetative form of *E. histolytica* once only, the cysts five times (0·42), *Balantidium coli* on a single occasion. Double infection was discovered in 36 cases, or 4·47 per cent. of the total, *E. coli* with Giardia ten times ; triple infection in seven instances, Trichomonas, Chilomastix, and Enteromonas twice, the rest, among them *E. coli*, Chilomastix, and cysts of *E. histolytica*, once.

H. Harold Scott.

SDRODOWSKI (P.). Zur Charakteristik der Darmprotozoen bei Menschen in Aserbeidschan. [**Intestinal Protozoa in Man in Azerbaijan.**] —*Abhandl. a. d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2). [Festschrift NOCHT.] pp. 512–516. [State Bact. Inst., Baku.]

In a systematic examination of the stools of 300 men of the garrison of Baku, 242 were found infested with Protozoa. The specific percentages were *Entamoeba coli* 41·8 ; *E. histolytica* (or at any rate 4-nucleate cysts), 24·3 ; Lamblia, 18·7 ; *Chilomastix mesnili*, 12·3 ; *Endolimax nana*, 12·0 ; *Iodamoeba buetschlii*, 7·0. The author mentions that Dr. WOSKRESENSKI examined 122 stools for intestinal worms and found 100 per cent. infested. He also mentions that among the surrounding native population heavy infestation with intestinal protozoa and 100 per cent. infestation with intestinal worms was observed, and furthermore that of 100,000 spleen and blood examinations made during the course of six years, the percentage of malaria infections ranged between 54 and 88 per cent.

A. A.

KIRBY, Jr. (Harold). **Notes on Some Parasites from Chimpanzees.**—*Proc. Soc. Experim. Biol. & Med.* 1928. May. Vol. 25. No. 8. pp. 698–700. [10 refs.] [Osborn Zoolog. Lab., Yale Univ.]

These chimpanzees had been in the laboratory for about 6 months when the examination of their faeces began. A Balantidium not distinguishable from *B. coli* was continually present in large numbers (in all of them apparently), usually in the active state, very rarely encysted. The infested stools were more often soft than shaped and occasionally were diarrhoeic, but the apes were healthy and did not appear to suffer. *Troglodytella abrassarti* also was abundant at first, but soon became scarce and at many subsequent examinations was not found in the stools at all. In the mouth of two of the apes an Entamoeba closely resembling *E. gingivalis*, but "remarkable for its eruptive manner of forming pseudopodia" was found.

A. A.

TORRES (C. Magarinos). Sur une nouvelle maladie de l'homme, caractérisée par la présence d'un parasite intracellulaire, très proche du *Toxoplasma* et de l'*Encephalitozoon*, dans le tissu musculaire cardiaque, les muscles du squelette, le tissu cellulaire sous-cutané et le tissu nerveux. [**A New Disease Parasite of Man, *Encephalitozoon chagasi*, found in Muscle and Nervous Tissue.**]—*C.R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1778–1781. With 2 text figs.

——. Morphologie d'un nouveau parasite de l'homme, *Encephalitozoon chagasi*, n. sp., observé dans un cas de méningo-encéphalo-myélite congenitale avec myosite et myocardite. *Ibid.* pp. 1787–1790. With 2 text figs. [1 ref.]

——. Affinités de l'*Encephalitozoon chagasi*, agent étiologique d'une méningo-encéphalo-myélite congénitale avec myocardite et myosite chez l'homme.—*Ibid.* pp 1798–1799. [1 ref.] [Oswaldo Cruz Inst., Rio de Janeiro.]

The subject of these studies is an intracellular parasite, finally determined to be a new species of Encephalitozoon, discovered in the tissues specified above—but not detected in any other tissue or organ, or in the blood—at the autopsy on the body of a well-formed two-day-old female infant (of the Caucasian race) at Rio de Janeiro. General tonic contraction of the muscles, breaking up in fatal convulsions, was the ephemeral life-history.

The striking feature at the post-mortem examination appears to have been a multitude of small yellow nodules, the largest about the size of a pin-head, the smallest just visible, scattered throughout both cerebral hemispheres and about the foramen of Vieussens. In these small inflammatory lesions, as outside them, and as also in the subcutaneous tissue and in inflammatory nodules in the skeletal and cardiac muscle, were discovered minute intracellular bodies which in sections of tissue fixed in Zenker's fluid and stained with haematoxylin-eosin were sometimes difficult to distinguish from the Leishmania form of *Schizotrypanum cruzi* as seen in sections.

The individual body occurs in two forms—a smaller form containing a single nucleus and not having a limiting membrane, and a larger form containing numerous nuclei and possessing a limiting membrane. The smaller form, as best observed from the subcutaneous tissue, measures

3·5 μ by 1·5 μ, and its cytoplasm stains a uniform rose ; its nucleus, which is 1 μ in diameter, round and slightly excentric, and is surrounded by a sort of halo, has a light blue centre and an intensely dark blue periphery. The larger forms, which range from 12 to 41 μ in length and from 7 to 10 μ in breadth and have finely granular cytoplasm and appear to have a limiting membrane, contain from 12 to more than 100 nuclei. The cells in the enveloping foci of inflammation in the brain and muscle are principally mononuclear, though sometimes eosinophiles are abundant. The author concludes that this intracellular body is a parasite congeneric with *Encephalitozoon cuniculi*, and names it *Encephalitozoon chagasi*. He indicates its obvious *differentiae* from Leishmania and Schizotrypanum, and from Globidium, Rhinosporidium, and Toxoplasma.

A. A.

Levaditi (C.). Au sujet de certaines protozooses héréditaires humaines à localisation oculaire et nerveuse. [**On Hereditary Protozoal Diseases of Man restricted to the Eye and Nervous System.**]—*C.R. Soc. Biol.* 1928. Feb. 3. Vol. 98. No. 4. pp. 297–299. With 1 text fig. [3 refs.]

With reference to Torres' discovery of a parasite in the brain of a new-born infant, Levaditi here draws attention to an analogous discovery reported in 1923 by J. Janku of Prague. In this case the infant, 11 months old, had an enormous hydrocephalus (75 cm. in circumference), congenital microphthalmus, and deficiency of the macula lutea. Histological examination revealed chronic inflammatory changes in the choroid and retina (of both eyes) and the presence there of "ovoid sporocysts of a parasitic nature, measuring 20 to 30 μ in diameter, and containing sporozoites," but of affinities difficult to determine. Janku decided that he was dealing with an inflammation contracted during foetal life and provoked by a Protozoon transmissible through the placenta. Levaditi is struck by the analogy between the observations recorded in these two cases, particularly in Torres' case, and his own experience of the hydrocephalic and other changes in the brain of rabbits, infected with *Toxoplasma cuniculi*, and he proposes to seek further light by an investigation of the axial nervous system of congenital hydrocephalics.

A. A.

Levaditi (C.) & Schoen (R.). Pénétration et pullulation de protozoaires dans la cellule nerveuse (neuroprotozooses). [**Penetration and Multiplication of Protozoa in the Nerve Cell.**]—*C.R. Acad. Sci.* 1928. June 4. Vol. 186. No. 23. pp. 1584–1586. With 8 text figs. [6 refs.]

The authors have shown that *Toxoplasma cuniculi* injected into the brain or the retina of rabbit and mouse may penetrate the local neurones and encyst there. Janku has demonstrated undoubted protozoan parasites in the retina of a hydrocephalic infant having a coloboma of the *macula lutea*. Doflein has described microsporidian cysts (*Nosema lophii*) in the ganglion cells of the common frog-fish (*Lophius piscatorius*). Spielmeyer has made known what appear to be protozoan parasites in the neurones of the cerebral cortex in a case of congenital amaurotic idiocy. The authors think that all these facts tell for the theory of the microsporidian nature of the rabies virus.

A. A.

Kofoid (Charles Atwood). **On *Councilmania dissimilis* sp. nov., an Intestinal Amoeba from Man.**—*Univ. California Public. Zool.* 1927. Aug. 23. Vol. 31. No. 2. pp. 7–16. With 16 figs. on 2 plates. [6 refs.]

In 1921 Kofoid and Swezy decided that under the name *Entamoeba coli* two distinct amoebae of the human intestine had been grouped together. The one of these retained the name *Entamoeba coli* and the other was placed in a distinct genus as *Councilmania lafleuri*. The reason for this somewhat revolutionary procedure was that in certain supposed *E. coli* infections, the amoebae showed a clear and definite ectoplasm, the nucleus had a diffuse karyosome consisting of a cluster of granules, while the cysts showed what was interpreted as budding through a pore in the cyst wall. Having concluded that these features amongst others justified the division of *Entamoeba coli* into two species and the establishment of a new genus, it would be only logical to suppose that if any other intestinal amoebae showed similar characters and variations then a similar splitting would be carried out. This has already been done in the case of the intestinal amoebae of rats and mice, and now finally in the paper under review *Entamoeba histolytica* suffers a similar disruption, for in certain infections it is stated that the amoeba has a dispersed karyosome while the cysts show a tendency to budding. The author having taken up a certain position in the first instance, with the courage of his convictions now divides *Entamoeba histolytica* into a form which retains this name and a new species *Councilmania dissimilis*. The author, moreover, considers that Kuenen and Swellengrebel's *Entamoeba tenuis* also belongs to the genus *Councilmania*, for he refers to it as *C. tenuis* in making the statement that "*Councilmania dissimilis* is less frequent in man than either *C. lafleuri* or *C. tenuis*." It would appear that in course of time every known species of *Entamoeba* will be either split into two to make room for a species of *Councilmania* or be transferred to this genus.

[The reviewer on a previous occasion (this *Bulletin*, Vol. 22, p. 333) gave his reasons for doubting the validity of the genus *Councilmania* and this last communication of the Californian School of Protozoology still further strengthens his position. He prefers to adhere to the view that, as in the case of *Entamoeba coli* and *Councilmania lafleuri*, the characters which are employed to establish the species *Councilmania dissimilis* are actually variations, real or artificial, within the range of *Entamoeba histolytica* itself.]

C. M. Wenyon.

Smith (Septima C.). **Host-Parasite Relations between *Iodamoeba williamsi* and Certain Mammalian Hosts (Guinea Pigs and Rats).**—*Amer. Jl. Hyg.* 1928. Jan. Vol. 8. No. 1. pp. 1–15. With 34 figs. on 3 plates. [21 refs.] [School of Hyg., Johns Hopkins Univ., Baltimore, Md.]

For the experiments recounted in this paper guineapigs and rats were employed. The following are among the facts elicited: That excystation of *Iodamoeba williamsi* occurred in the jejunum between 1 and 3 hours after ingestion of cysts—the ingested cysts having been those both fresh-passed and up to 36 hours old; that generally the excysted trophozoites survived less than 7 hours, and that the caecum was indicated as the place of destruction; and that the number of rats that became infected with *I. williamsi* from eating food that contained cysts

" was greater among young amoeba-free animals than among old amoeba-free animals or young animals known to possess an infection with the rat amoeba." It is noted that the wall of the empty cyst, after the complete issue of the amoeba, appeared intact ; also that *in vitro* the only essentials for excystation are moisture and a suitable temperature (37°–40° C.).

A. A.

Smith (Septima C.). **Polar Planimeter Measurements of Cysts of** *Iodamoeba williamsi.*—*Jl. Parasit.* 1927. Dec. Vol. 14. No. 2. pp. 97–101. With 2 text figs. [2 refs.] [School of Hyg., Johns Hopkins Univ., Baltimore, Md.]

Considering the irregularity and variability of shape of the cysts of *Iodamoeba williamsi* and the consequent difficulty of standardizing their size for practical purposes, the author proposes to measure them, not by their diameter, but by their area. For technical details those interested in this academic discussion must consult the original paper.

A. A.

Pacheco (Genesio). Sur la fréquence des kystes d'amibes et d'autres protozoaires dans des fèces, apparemment normales, provenant des zones suburbaines et rurales de Rio-de-Janeiro. [**Frequency of Amoebic and other Cysts in the Faeces from Rio and Surroundings.**] —*C.R. Soc. Biol.* 1928. May 25. Vol. 98. No. 17. pp. 1560–1561. [3 refs.]

The author does not confirm Brumpt's estimate of the existence of 100,000 carriers of quadrinucleate cysts in Buenos Aires. In 220 individual faecal examinations (exclusive of catarrhal and sanguineous faeces containing vegetative forms) amoeba cysts were found in only 7·2 per cent., and cysts of *Entamoeba histolytica* in only 1·8 per cent.

Other Protozoa found were *E. coli* (cysts) 4 per cent., Amoeba of *limax* type 0·4 per cent., *Iodamoeba buetschlii* (cysts), and cysts of Giardia and Chilomastix.

A. A.

Bacigalupo (J.). *Entamoeba coli* parasitée par une *Sphaerita.* [*E. coli* **parasitized by a Sphaerita.**]—*C.R. Soc. Biol.* 1928. Jan. 20. Vol. 98. No. 2. pp. 170–171. [2 refs.] [Central Military Hosp., Buenos Aires.]

The author has observed Sphaerita twice in *Endolimax nana*, twice in *Entamoeba coli*, and once in *E. histolytica*.

A. A.

Hegner (Robert). **Experimental Studies on the Viability and Transmission of** *Trichomonas hominis.*—*Amer. Jl. Hyg.* 1928. Jan. Vol. 8. No. 1. pp. 16–34. [12 refs.] [School of Hyg., Johns Hopkins Univ., Baltimore, Md.]

Since *Trichomonas hominis* exists only as a trophozoite it is interesting to know how long it can live away from its host. The author's experiments, here condensed, show that in infected faecal matter at room temperature of about 70° F.—and even in incubators at 77° F. and 89° F. —very few remained alive after 48 or 72 hours, though survivors might hold out for as long as 8 days ; at 104° F. and 111° F. none could be

found after 5 hours. In infected faeces deposited on ordinary garden soil in the shade in wet and cloudy weather with the thermometer ranging between 54° F. and 66° F., only a slight fall in numbers was noticed during the first 24 hours, but very few were present at the end of 72 hours, cultures, however, being positive on the 7th day ; on sandy soil the deposit sank, and cultures from the contaminated sand could not be obtained after 12 hours. The flagellate can live for several days in infected faeces diluted to a moderate extent (up to 25 gm. in 75 cc.) with tap water ; but in high dilutions, e.g., 1 gm. of infected faeces in 99 cc. of water, it lives usually about one hour, although positive cultures were obtained at the end of 5 or 6 hours. Cockroaches eat infected faeces freely, but very few flagellates reach the stomach alive, and the further passage onwards is so slow that it is highly improbable that any are evacuated alive. The living flagellates were found in the droppings of common domestic flies (*Cynomyia cadaverina, Musca domestica,* and *Lucilia sericata*) passed (at intervals) between 20 minutes and 6 hours after ingestion of infected faeces, and cultures were obtained from the droppings up to 4 hours after. Lysol even in a 0·5 per cent. solution destroys all trichomonads in faecal matter in five minutes ; but a 0·5 per cent. solution of creolin does not, nor does a 1 per cent. solution of carbolic acid—though of course solutions double these strengths are fatal in 5 minutes.

A. A.

HEGNER (Robert). **The Ingestion of Red Blood Corpuscles by Trichomonad Flagellates. Observations showing that it is Not Evidence of Pathogenicity.**—*Jl. Amer. Med. Assoc.* 1928. Mar. 10. Vol. 90, No. 10. pp. 741–742. [12 refs.]

The casual ingestion of red blood cells by amoebae and flagellates has been regarded by some as evidence of a pathogenous bent, but the experiments here described show that flagellates ingest red cells just as they take up bacteria or any other organic food-particles in their environment. In this series of experiments eight species of trichomonads from different animals were grown in serum-saline-citrate medium, and blood from seven different species of mammals was supplied to each culture tube. It was found that every species of trichomonads ingested red cells of each and every species of mammals. The following table of results is interesting :—

Percentage of Trichomonads that Ingested Red Cells according to the Number ingested by each regardless of the Source of the Red Cells.

Source of Trichomonads	Number of Red Cells Ingested.							
	0	1	2	3	4	5	6	7
Intestine of Man ...	58	23·4	12	4·8	1	0·4	0·14	0·14
Mouth of Man ...	47·1	33·7	9·8	7·1	1·7	0·4	—	—
Intestine of Monkey	89·9	7·6	1·5	0·57	0·28	0·14	—	—
Vagina of Monkey ...	73	17·7	6·15	2·4	0·4	0·28	—	—
Intestine of Cat ...	54·5	28·6	10·04	5	1·14	0·4	0·14	—
Caecum of Rat ...	81·5	14·8	3·1	0·57	—	—	—	—
Caecum of Chicken ...	90·3	8·4	0·84	0·28	0·14	—	—	—
Rectum of Frog ...	92·5	4·15	1·86	0·71	0·4	0·14	—	—

A. A.

Varela, Garcia de San Martin (H.) & Rubino (P.). La tricomonosis vaginal en la etiologia del prurito vulvar. [*Trichomonas vaginalis* **as a Cause of Vulval Pruritus.**]—*Prensa Méd. Argentina.* 1927. Dec. 30. Vol. 14. No. 21. pp. 781–785. [4 refs.]

Two cases of intense and obstinate pruritus vulvae concurrent with large numbers of Trichomonas, cured by corrosive sublimate douches (1 : 2000) followed by tampons of boric-glycerin.

H. Harold Scott.

Hogue (Mary Jane). **The Effect of** *Bacillus pyocyaneus* **on Cultures of** *Trichomonas hominis.*—*Amer. Jl. Hyg.* 1928. Jan. Vol. 8. No. 1. pp. 85–88. [3 refs.] [School of Med., Univ. of Pennsylvania, Philadelphia, Pa.]

The author reports that *Pseudomonas pyocyanea* prevents the growth of *Trichomonas hominis* in saline-serum cultures, unless in deep cultures under paraffin oil.

A. A.

Carrieu (M.) & Rambault-Simon (Mme.). Etude des flagellés de l'intestin humain dans la région de Montpellier. [**Flagellates of the Human Gut in the Montpellier District.**]—*Arch. des Malad. de l'Appareil Digestif.* 1927. June. Vol. 17. No. 6. pp. 658–669. [27 refs.]

During the academic year 1925–26 the authors carried on a systematic examination of the stools of 212 medical and surgical patients of all descriptions at Montpellier. In only 17 patients were flagellates observed—*Trichomonas hominis* in 9, *Giardia "enterica"* in 6, *Chilomastix mesnili* in 2. In 15 cases out of the 17 the stools were abnormal in character ; but only in the case of Giardia were definite intestinal troubles a constant concomitant. In treatment chloride of calcium, stovarsol, essence of turpentine, thymol were all tried, but in no case did a complete cure result.

A. A.

Potter (Louis A.). **Two Species of Giardia from the Rat.**—*Amer. Jl. Hyg.* 1928. Jan. Vol. 8. No. 1. pp. 77–84. With 4 text figs. [10 refs.]

This is a careful and well-illustrated report of a comparative study of Giardia species undertaken for the identification of two species found together in the same rats, the results furnishing what the author describes diffidently as "strong evidence" that one of them is *G. muris*, and the other *G. lamblia*.

A. A.

Skvorzowa (E. D.). Contribution à l'étude des lambliases duodénales. [**Lambliasis of the Duodenum.**]—*Russian Jl. Trop. Med.* 1928. Vol. 6. No. 2. French summary p. 142. [In Russian pp. 106–111, 26 refs.]

Case of a man of 27 years who suffered repeated attacks of jaundice, with acute abdominal pain, nausea, vomiting, and rise of temperature to 37·8° C. The last of various attempts at diagnosis was perforating ulcer of the pylorus. Examination of the duodenum, however, disclosed Giardia innumerable. Duodenal drainage and intravenous injections of neo-salvarsan had a good effect.

A. A.

DA CUNHA (A. M.) & MUNIZ (Julio). L'enkystement du *Chilomastix mesnili* en culture. [**The Encystment of Chilomastix in Culture.**]—*C.R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1777–1778. [Oswaldo Cruz Inst., Rio de Janeiro.]

—— & ——. Enkystamento do *Chilomastix mesnili* em cultura. [**Encystment of *Chilomastix mesnili* in Culture.**]—*Bol. Biol.* S. Paulo. 1927. Dec. 15. No. 10. pp. 201–202. With 1 fig.

In cultivating *Entamoeba histolytica* from stools of a dysentery patient which also contained *Trichomonas hominis* and *Chilomastix mesnili*, the authors were surprised at the number of cysts of *C. mesnili* always found after 48 hours at 37° C. in the culture media that contained blood (NNN+ blood with Ringer's fluid and 1 per cent. dextrin). They think this observation of encystment under novel conditions worthy of attention.

A. A.

KNOWLES (R.) & GUPTA (Biraj Mohan Das). **Laboratory Studies in Surra. I. On the Role of the Thyroid Gland in Susceptibility and Resistance to a Protozoal Infection.**—*Indian Jl. Med. Res.* 1928. Apr. Vol. 15. No. 4. pp. 997–1057. With 10 text figs. [18 refs.]

About four-fifths of the body of this paper is devoted to the study of the course of surra in normal laboratory animals.

As regards the influence of the thyroid on surra infection, the authors conclude from their experiments: (1) that sub-total removal of the thyroid is attended by loss of resistance, a more rapid and acute course of the disease, and earlier death; and (2) that the results of feeding white rats on thyroid are variable and are not always remarkably different from those of control experiments—though an individual animal " here and there seems to respond to intensive thyroid feeding by putting up a markedly increased resistance, with a more prolonged course of the disease and a later death." These *individual* differences under identical conditions of experiment may, the authors think, be explained by the conclusion of SCHERN—a conclusion confirmed by themselves—that trypanosomes live on the blood sugar and that death in the acute phase of trypanosomiasis (surra in this instance) coincides with a condition of absolute hypoglycaemia; since the blood-sugar content, being dependent upon the activities of the liver and adrenal glands, the control of the thyroid over these activities and over the blood-sugar content must be individually biassed.

A. A.

ROSKIN (G.) & SCHISCHLIAIEWA (S.). Die Kernteilung bei Trypanosomen. [**Nuclear Division in Trypanosomes.**]—*Arch. f. Protistenk.* 1928. Feb. 14. Vol. 60. No. 3. pp. 460–481. With 6 text figs. & 10 coloured figs. on 1 plate. [20 refs.] [Microb. Inst., Education Commissariat, Moscow.]

The author describes, figures, and discusses the fission of the trophonucleus in *Trypanosoma equiperdum, brucei, rhodesiense*, and surra. He describes the process as something peculiar—certainly not amitosis, since there is a definite order in the manner of division of the chromatin; but not at all a typical mitosis. To begin with, the peripheral chromatin and the caryosome of the resting nucleus unite to form a single central mass, and this enlarged caryosome divides into three " mother-chromosomes." (This initial process agrees in the main with SCHULZ's description of nuclear division in Leptomonas and with that in *Leishmania tropica* described by

Roskin and Romanowa). The mother-chromosomes become arranged in a triangle and each divides into two daughter-chromosomes. The six daughter-chromosomes become arranged in two triangles; these draw apart and become separately enveloped, and the chromatin of each daughter nucleus assumes its resting arrangement.

A. A.

Chodukin (N. I.). Zur Frage ueber die Protozoa des Darms des Phlebotomus. [**On the Intestinal Protozoa of Phlebotomus.**]—*Pensée Méd. d' Usbékistane.* Tashkent. 1927. Oct. Vol. 2. No. 1. German summary p. 129. [In Russian pp. 83–87. With 1 text fig. 4 refs.]

The German translation states that Chodukin in Bokhara examined the pharynx and its neighbourhood in 340 female Phlebotomus (*P. li*, *P. sergenti*, *P. papatasii*, and *P. minutus*), caught mostly in houses where sufferers from leishmaniasis were living, and that he found protozoa in 3 of them—namely a trypanosome along with some herpetomonas and crithidia forms in 2, and a *Leishmania tropica* (?) in 1. The trypanosome is described at considerable length, but not critically, and the author is unsure whether it is a new species or derived from another animal—perhaps a camel.

A. A.

Franchini (Giuseppe). Ueber einen Coccidiosisfall beim Menschen, verursacht durch "Isospora Hominis" Rivolta. [**A Case of Coccidiosis in Man due to** *Isospora hominis.*]—*Abhandl. a. d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2). [Festschrift Nocht.] pp. 115–120. With 6 text figs. [10 refs.]

The patient was a man of 25 years. Dysentery and the occurrence of active *E. histolytica* in the faeces was included in his previous history, but the stools when examined about 11 months prior to the discovery of oocysts were pronounced to be "negative." The development of the oocysts was followed in the laboratory and the species determined to be *Isospora bigemina hominis*. With stovarsol treatment the number of oocysts in the faeces has diminished.

A. A.

Hartman (Ernest). **Three Species of Bird Malaria,** *Plasmodium praecox, P. cathemerium* **n. sp., and** *P. inconstans* **n. sp.**—*Arch. f. Protistenk.* 1927. Dec. 2. Vol. 60. No. 1. pp. 1–7. With 2 coloured plates. [16 refs.] [Zool. Lab., Univ. of Illinois, Urbana.]

The author remarks that Celli and Sanfelice, in 1891, noticed three kinds of malaria parasites of birds, but did not name them specifically with a recognizable description for each. He himself in his recent work has been able to distinguish three kinds, all of them existing in the common house-sparrow and transmissible to the canary. One of these species seems to be identical with one of those noticed by Celli and Sanfelice, said by them to have "a form very similar to a crescent" and named by them *Haemamoeba praecox*. [It is the thing

often spoken of by casual observers of sparrow blood as " halteridium."] To this species, " having crescent shaped gametocytes and not markedly different in morphology from *P. falciparum* of man " the author restricts the name *Plasmodium praecox*. The other two species, although no doubt they have been handled and described and figured, are considered by the author to have not received separate exclusive and distinctive specific names, and indeed are known to have had the name "praecox" applied to their photographs. For one of them, having spherical [in the figures very broadly elliptical] gametocytes containing rod-shaped pigment-granules, and trophozoites staining fairly-uniformly without clearly distinct vacuolation and with the pigment either in a single amorphous mass or in a few masses forming a single compact group, the name *Plasmodium cathemerium* is proposed. For the other having (as figured) frankly elliptical gametocytes in which the nearly-spherical pigment-granules are often segregated together in a number of constellations, and trophozoites in which the pigment is scattered and frequently in small granules, the name *Plasmodium inconstans* is proposed.

It may be noticed further that in *P. praecox*, s.r., schizonts are seldom found in the peripheral circulation, and when found are always in the red corpuscles ; that in *P. cathemerium* the number of merozoites per schizont ranges from 6 to 24 ; and that the size of *P. inconstans* is generally less than in the preceding species.

Incidentally the author remarks upon the obliquity of naming " new species " of bird-malaria parasites merely on the basis of the species of host in which the individual observer happens to find the parasite. He himself has transmitted *P. cathemerium* by direct inoculation from the canary to the siskin, to the cow-bird, to the red-winged blackbird, and back from the blackbird to canaries seven months later.

A. A.

Sergent (Ed. & Et.) & Catanei (A.). Sur un parasite nouveau du paludisme des oiseaux. [**A New Malaria Parasite of Birds.**]—*C.R. Acad. Sci.* 1928. Mar. 19. Vol. 186. No. 12. pp. 809–811. [4 refs.]

The new parasite, *Plasmodium rouxi*, here characterized and carefully differentiated, is a parasite of bird-malaria, first observed eight years ago in Algeria-bred canaries, and since maintained in constancy of character in fourteen passages from bird to bird. Its mean incubation period by direct inoculation is 21 days (extremes of 11 days and 48 days in a series of 26 cases), and the parasites multiply slowly for 3 weeks after their first appearance ; but thereafter parasites may be found in the peripheral blood during the whole course of the infection, which is chronic (and apparently incurable) with irregular relapses. The infection is highly pathogenous, 15 out of 50 having been mortal ; the spleen is always enlarged.

The young parasite is characterized by the constant presence of two unequal grains of pigment. As it grows it becomes elongated, but not longer than the nucleus of the infected red blood cell. Forms 2–4 μ long by 1 or 1·5 μ broad are the most numerous, and in stained preparations have a remarkable quadrangular shape ; the longest forms attain about 10 μ. The schizonts produce four merozoites.

Of all known haemocytozoa of birds this extremely pathogenous species seems to be nearest akin to the non-pathogenous *P. vaughani*, parasite of the American robin (*Turdus migratorius*), described by Novy and MacNeal.

The authors emphasize the resemblance between its pathological phenomena and those of human malaria.

A. A.

Macfie (J. W. S.). **A Malaria Infection of the Baboon** *Papio sphinx.*—*Proc. Roy. Soc. Med.* 1928. Jan. Vol. 21. No. 3. pp. 467–471 (Sect. Trop. Dis. & Parasit. pp. 21–25.) With 1 chart & 1 fig. [5 refs.] [London School of Hyg. & Trop. Med.]

The infection here critically described relates to a young baboon at Accra, and was under observation for five months. The heavy infection noticed at the outset was concurrent with considerable irregular fever, which subsided in a few days when the parasites became—as they afterwards continued—scanty. The parasite is described as of the *P. vivax* type, the ring forms rather large, the more advanced phases remarkably irregular and often amoeboid even to *tenue*-ty, the pigment granules light brown and fine, the gametocytes of the *vivax* type and usually larger than the red corpuscles. The parasitized corpuscules are not distinctly enlarged and not definitely stippled. No mature schizonts were found. The differences from *P. kochi* and the close resemblance to *P. inui* are indicated. Attempts to infect 2 species of Cercopithecus and a Cercocebus by injection of blood were not successful. Infection of mosquitoes (Anopheles, Mansonoides, *Aëdes argenteus*) was tried, without success.

A. A.

Anderson (Ch. W.) & Cowdry (E. V.). Etudes cytologiques sur le paludisme. (Premier mémoire). Etude de la " flagellation " du *Plasmodium kochi* avec le fond noir. [**Study of Flagellation of** *P. kochi.*]—*Arch. Inst. Pasteur de Tunis.* 1928. Mar. Vol. 17. No. 1. pp. 46–72. With 119 figs. on 4 coloured plates. [14 refs.]

A description in full and continuous detail, with 119 figures, of the process of flagellation in *Plasmodium kochi* from the Cebid monkey Callithrix.

A. A.

Godoy (A.) & Lacorte (J. G.). Action d'un noyau de l'oxy-amino-quinoléine sur les gamètes et les sporozoïtes de l'*Halteridium* du pigeon. [**Action of Plasmochin on the Gametes and Sporozoites of Halteridium of the Pigeon.**]—*C.R. Soc. Biol.* 1928. Mar. 2. Vol. 98. No. 8. pp. 617–619.

The conclusions of the experiments here reported are that oxy-amino-quinolein (plasmochin) destroys the gametocytes but not the schizonts of the Halteridium of the pigeon ; it also has a destructive action on the Halteridium sporozoites if administered (per os) within an hour of the injection of the sporozoites into the pigeon, but not when administered 24 hours afterwards.

A. A.

Naidu (A. Srinivasulu). **A Case of Sarcosporidiosis.**—*Lancet.* 1928. Mar. 17. pp. 549–550.

The patient, a male Hindu of 55 years, gave a history of a pustule or small abscess of 15 days, and as the result of it exhibited (over the left nipple) an irregular ulcer with undermined and indurated edges, and a fungating base perforated like a sieve, the size of the lesion being about 1½ by 1 inch. This ulcer was duly excised, and the excised tissue was found to be invaded by sarcocysts containing multitudes of typical spores.

A. A.

Jameson (A. Pringle). **The Action of Certain Drugs and Chemicals on *Balantidium coli* Malm. in Cultures.**—*Parasitology.* 1928. Apr. Vol. 20. No. 1. pp. 66–76. [22 refs.] [Inst. of Animal Path., Cambridge.]

The experiments described in this paper were made on cultures, and these were started from fresh-killed pigs. The drugs tested were made up either in 1 per cent. solution in distilled water and then (if necessary) diluted with Ringer and eggwhite, or directly in Ringer eggwhite. After inoculation the tubes were incubated at 37° C. for 3 days. A control tube was put up for every three, or occasionally our, drug-dilution tubes. Almost invariably several tubes of each dilution were put up at the same time. Only a few of the 26 drugs tested proved interesting. The following is the author's summary :—

" 1. *In vitro* work on intestinal protozoa, employing the latest culture methods, seems to approach very closely to the normal conditions in the gut of the host.

" 2. *Balantidium coli* is readily cultivated in a medium composed of an inspissated horse-serum slope covered with Ringer's solution to which egg-albumen and starch are added.

" 3. Tested in this medium ipecacuanha and its alkaloids, emetine and cephaeline, show a considerable degree of toxicity.

" 4. *Iso*emetine, methylpsychotrine and demethoxyemetine are not toxic.

" 5. Arsenic compounds are not very toxic, atoxyl being the most toxic of those tried and stovarsol hardly at all toxic.

" 6. Colloidal silver compounds are at best feebly toxic.

" 7. Quinine is very feebly toxic.

" 8. There is evidence of a distinct correspondence between *B. coli* and *E. histolytica* in their reaction to certain drugs."

A. A.

Bulletin of the Antivenin Institute of America. Philadelphia, Pa. 1928. Jan. Vol. 1. No. 4. pp. 91–119.

Nearly half of this Number is filled with Mr. A. Loveridge's thrilling adventures with cobras in East Africa. Mr. Loveridge has frequently encountered the black-necked cobra (*Naja nigricollis*) in action, and he confirms the statement that the reptile spits its venom from some distance, aiming at its enemy's face deliberately and with accuracy so nice that the spray gets into his eyes. The resulting conjunctivitis heals in a few days if properly treated. Mr. D. D. H. March discourses familiarly on the fer-de-lance (*Lachesis atrox*) as encountered in Honduras. Mr. G. E. Coleman gives some account of a reputed antidote of the Hopi Indians to rattlesnake venom—a secret herbal antidote, which is applied locally and also taken internally ; his own experiments show that it did " not protect guineapigs against

small amounts of rattlesnake venom." Do Amaral describes his plan of removing venom from a snake without damaging the reptile's mouth. He also gives some figures of the average amounts of venom yielded at one action by different species of American pit-vipers, and of the ratio between the solids and the liquids of the venom.

A. A.

Bulletin of the Antivenin Institute of America. Philadelphia, Pa. 1928. Apr. Vol. 2. No. 1. pp. 1–24.

An interesting item is Mr. W. H. Over's account of his own sufferings from snake-bite. The snake was a rattlesnake, *Crotalus confluentus*, that had been in captivity 5½ years, the victim was 57 years old, and the wound was inflicted by one fang, which was driven into the second joint of the left index finger. A ligature [which could have been of little use] was immediately applied to the finger, and a minute later the wound was incised, sucked, and treated with strong solutions of $KMnO_4$. Except for a hypodermic injection of morphine 3 hours after the infliction of the wound, there was no further treatment.

The victim describes the instantaneous pain shooting up the arm, the dizziness and faintness, and the peculiar creepy sensation over the whole body which occurred when, in half an hour, the ligature was removed. About half an hour after that vomiting occurred and a stupendous evacuation from the bowel, and there was much nervous distress subsequently. In 3 hours time an insatiable thirst started, and resisted all allaying efforts for 36 hours. The swelling is described. It began about an hour after the infliction of the wound, in 36 hours the whole arm was swollen seemingly to its utmost capacity, and it then extended to the left side as far as the waist. Intense pain and itching accompanied the swelling, which was suffused with blood like a bruise. The swelling began to subside in ten days, but had not disappeared entirely at the end of two weeks. The pain, which at first interfered with sleep, persisted after the swelling had gone. Four weeks after the accident the wounded finger was still swollen and stiff, and then it was discovered that a fang was imbedded in the flesh. Although the patient made a good recovery the finger was still stiff and painful a year afterwards.

Mr. A. Loveridge contributes a stirring paper on the vipers of East Africa—Bitis, Causus, Atheris, and Atractaspis. *Bitis arietans*, the puff adder, which appears to be a notorious trespasser into houses, is fortunately not aggressive, although sullenly indisposed to budge when disturbed. The author tells of a bite inflicted on himself by this snake. Only one fang penetrated and immediate treatment with ligature and strong solution of $KMnO_4$ was effective. This species is said to be mistaken for a comparatively harmless python sometimes. The remarkably bright carpet-like colouring of *Bitis gabonica* and *nasicornis* is said to have the paradoxical effect of making these species inconspicuous. The very common *Causus rhombeatus* is given a bad character, being both voracious and viciously aggressive. The tree-vipers of the genus Atheris also are called vicious. The burrowing vipers of the genus Atractaspis are said to be active and aggressive when they are brought to the surface by rain. Mr. L. M. Klauber has a paper on the manipulation of rattlesnakes for the collection of their venom, and there are also three papers on taxonomic herpetology.

A. A.

DE ASSUMPÇÃO (Lucas). O Instituto de Butantan na lucta contra o ophidismo. Alto efficacia dos seus soros anti-peçonhentos. [**The Efficacy of Anti-Venin prepared at the Butantan Institute.**]—*Brasil-Medico.* 1928. May 5. Vol. 42. No. 18. pp. 480–491. With 3 charts in text.

The Institute was first opened for the preparation of plague vaccine in 1899. In 1901 the manufacture of antivenin was started. More than 10,000 poisonous snakes on an average have been received yearly of late.

Two antivenins are made : a monovalent anti-crotaline and a polyvalent for Crotalus and some half-dozen species of Lachesis. The results of employment of these have been remarkably good. Between 1902 and 1927 one statistical account gives 101 deaths out of 3,138 individuals (including animals) bitten, a mortality of only 3·2 per cent. Death was in almost all instances ascribable to delay in initiating treatment. [In another table the total number of cases is stated to be 3,131, of which 116 died, giving a mortality of 3·7 per cent.] Most of the bites were by *L. lanceolatus*, 1,179 cases, next in order being by *Crotalus terrificus*, 432 cases. Excluding animals and dealing solely with human cases, the mortality rate was only 2·5 per cent.

The dosage recommended is as follows : Between one and two hours after the accident 1–2 ampoules of serum ; between two and four hours 3–4 ampoules ; between four and eight hours 4–6 ampoules.

[The figures given in the above abstract are as accurate as could be worked out from the text. An element of uncertainty arises from the fact that the figures in the text and those in the tables are not always in agreement.]

H. Harold Scott.

BRAZIL (Vital) & VELLARD (J.). Action coagulante et anticoagulante des venins. [**Coagulating and Anticoagulating Action of Venoms.**] —*Ann. Inst. Pasteur.* 1928. Apr. Vol. 42. No. 4. pp. 403–451. With 2 text figs. [38 refs.]

Dissimilar methods and conditions of study have led to notoriously discordant conclusions respecting the action of specific snake-venoms upon the clotting of the blood ; employing a settled technique under uniform *in vitro* conditions the authors expect more consistent results. Their range of study includes 16 species of Crotalines (4 Crotalus, 9 American and 1 Asiatic Lachesis, and 2 American Ancistrodon) ; 1 Viperine (*Vipera russellii*) ; 6 proteroglyph Colubrids (4 Elaps, *Naja tripudians*, and *Notechis scutatus*) ; 1 opisthoglyph Colubrid (*Philodryas schotti*) ; 2 toads (*Bufo marinus* and *paracnemis*) ; 3 spiders (*Ctenus nigriventer*, *Lycosa raptoria*, and *Nephila clavipes*), 2 scorpions (*Tityus bahiensis* and *Bothriurus vittatus*) and a wasp of the genus *Polistes*.

Of all the 24 snake-venoms specified above, that of *Naja tripudians* (Indian cobra) alone inhibits coagulation and has no proteolytic action. All the others are coagulant in different degree, and those of Crotalus, Lachesis, and Ancistrodon have also a proteolytic (anticoagulant) property, it being possible to dissociate the coagulant and the proteolytic properties by heat. The resistance of the coagulant property to heat is variable ; in some species it is lost altogether at 80°. [? C.], in others it is only slightly impaired after 15 minutes exposure to

100° [? C.]. There is no parallelism between coagulant power and toxic virulence. Some of the venoms in doses below the minimum coagulant dose stimulate the normal clotting of the blood; others do not.

The venoms of the two species of Bufo slightly inhibit coagulation. Those of the spiders and of Polistes are inactive; those of the scorpions are feebly coagulant.

The action of a given venom upon the plasma of different kinds of animals is very variable; certain venoms (e.g., *Lachesis jararacucu*) that are extremely coagulant for the plasma of cold-blooded animals have little effect on mammalian plasma; other venoms extremely coagulant for mammalia have almost no effect upon the plasma of oviparous vertebrates.

A. A.

PHISALIX. Pouvoir rabicide *in vitro* du venin de vipère aspic. [**Rabicidal Power in Vitro of the Venom of** *Vipera aspis.*]—*C.R. Acad. Sci.* 1928. Mar. 19. Vol. 186. No. 12. pp. 795–797. [4 refs.]

The author has previously shown that the rabbit immunized (by repeated doses) to the venom of *Vipera aspis* (and also to the mucous venom of certain batrachians) becomes protected against the fixed virus of rabies; and CALMETTE has also shown that the venom of the Cobra possesses the same "rabicide" property. In both cases the blood of the animal immunized to the venom becomes antirabic. In the present paper the author shows that the venom of the viper (*V. aspis*) retains its "rabicide" power *in vitro* even after its toxic power has been destroyed by heat. The antirabic power is thus something quite distinct.

A. A.

PHISALIX (M.) & PASTEUR (F.). Action des rayons ultra-violets sur le venin de vipère aspic. [**Action of Ultra-Violet Rays on the Venom of** *Vipera aspis.*]—*C.R. Acad. Sci.* 1928. Feb. 20. Vol. 186. No. 8. pp. 538–540.

Submitting solutions of dried and well preserved venom of *Vipera aspis* to the action of the ultra-violet rays the authors found that the virulence of the venom was in no case diminished thereby, but in certain cases was rather increased. The only constituent of the venom that was destroyed by the rays was the echidno-vaccin upon which the production of immunity depends.

A. A.

PHISALIX (M.) & PASTEUR (F.). Les rayons ultra-violets détruisent le pouvoir rabicide du venin de la vipère aspic (*Vipera aspis* L.). [**Destruction by Ultra-Violet Rays of Rabicidal Power of Venom of** *V. aspis.*]—*C.R. Acad. Sci.* 1928. Apr. 2. Vol. 186. No. 14. pp. 975–977. [2 refs.]

Although heating to 100° C. destroys the toxic and the anti-venomous properties of viper venom, it has no such effect upon its antirabic power. Exposure to ultra-violet rays, however, destroys, as is here shown, also the antirabic power of that venom. In other words ultra-violet irradiation has an elective destructive effect on the distinct antigens that condition the antivenomous and antirabic powers.

A. A.

PHISALIX (M.). Indépendence des propriétés antirabiques et antivenimeuses du sang des couleuvres aglyphes appartenant au genre *Coluber* Lin. [**Antirabic and Antivenom Properties of the Blood of Aglyph Colubrids.**]—*Bull. Soc. Path. Exot.* 1927. Dec. 14. Vol. 20. No. 10. pp. 986–988.

——. Propriétés du sérum des couleuvres aglyphes appartenant au genre *Coluber* Lin.—*C.R. Acad. Sci.* 1927. Dec. 19. Vol. 185. No. 25. pp. 1536–1538. [1 ref.]

In a former paper (*C.R. Acad. Sci.*, 1926, Vol. 182, p. 499) the author showed that the toxic serum of certain aglyph Colubrid snakes, namely, *Coluber natrix* and *viperinus* (serum that becomes antivenomous by appropriate heating) manifests—like the serum of the viper—strongly antirabic properties *in vitro*. In the present papers she describes experiments with two other aglyph Colubrids—*Coluber aesculapii* and *scalaris*—showing that *in vitro* the heated serum of *C. aesculapii* has antivenomous properties equal to that of the viper and antirabic properties much less than that of the viper, while that of *C. scalaris* neutralizes viper venom both *in vitro* and *in vivo*, but has no antirabic property at all.

A. A.

PICADO (C.). Traitement diastasique de l'envenimation cobraïque expérimentale. [**Diastasic Treatment of Experimental Cobra Poisoning.**]—*C.R. Soc. Biol.* 1928. Apr. 27. Vol. 98. No. 13. pp. 1130–1131. [1 ref.] [San José Hosp., Costa Rica.]

This is rather an academic subject. Prolonged contact with trypsin destroys snake (cobra) venom, and eosin by precipitating the venom gives the trypsin time to convert the venom into a substance the toxicity of which can be neutralized by sulphate of spartein. The author wonders whether this series of reactions could be usefully applied to treatment of snake-bite in the absence of antivenine.

. A.

STEWART (A. D.). **A Note on Stability of Solutions of Calcium Hypochlorite intended for Use in Snake Bite.**—*Indian Med. Gaz.* 1928. 1928. Feb. Vol. 63. No. 2. pp. 76–77.

For immediate local treatment of snake-bite CALMETTE's classical method is by injections of a 2 per cent. solution of calcium-hypochlorite—a solution that has the credit of being innocuous to the tissues. Experiments recorded in the present paper show that such solutions if kept in store for general issue for emergencies, must be sealed in amber-coloured ampoules and kept in the dark in a cool room (about 70° F.); under these conditions a solution of approximately 2 per cent. available chlorine had lost only about 5·5 per cent. of its original strength at the end of a year. A similar solution similarly sealed and simply kept in the laboratory had lost more than half its strength, and a similar solution—and even a stronger solution—sealed in colourless ampoules and kept in the laboratory had lost all their original strength at the end of a year. In fact, the solutions kept in colourless ampoules, even when they were fortified with a small amount of alkali, had lost from three-fourths to four-fifths of their strength at the end of three months.

A. A.

YARROW (Henry Crecy). **Recurrence of Symptoms after Snake Bite.**—*Milit. Surgeon.* 1928. Jan. Vol. 62. No. 1. pp. 73–76.

The author, whose views, at least, on the treatment of snake venom, are not those now current, quotes four cases, reported and published

respectively in 1843, 1860, 1872–73, and 1875, where " poisonous symptoms " recurred, in the first case, annually for 18 years, in the second at 27 years, in the third case yearly, and in the fourth case periodically for more than 6 years, after the infliction of a snake-bite. In the first and third cases the snake was *Ancistrodon piscivorus*, in the second case, *A. contortrix*, and in the fourth case an unspecified rattlesnake.

A. A.

MYLREA (C. Stanley G.). **A Case of Snake Bite in Kuwait, Arabia.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1928. Feb. 25. Vol. 21. No. 5. p. 426.

The patient in this case was suffering pain and shock and incessant vomiting when seen 9 hours after being bitten. Marks between toes on the *right* foot were indicated as caused by the snake's teeth. The *left* arm and leg were observed to be limp and the eyelid on the same side to be drooping, and within 24 hours of the accident that arm and leg were completely paralysed. Within a few days the paralysis began to clear up, but the ptosis was slightly evident a month afterwards, when the patient left hospital [Unfortunately, nothing was afterwards seen of the snake, which was said to be " a small brown creature."]

A. A.

WADE (H. W.). **Post-Mortem Findings in Acute Jelly-Fish Poisoning with Sudden Death in Status Lymphaticus.**—*Amer. Jl. Trop. Med.* 1928. May. Vol. 8. No. 3. pp. 233–241. [8 refs.]

In addition to good documenting there is here a useful summary of recorded and characteristic symptoms of medusa-sting—pain, respiratory embarrassment, restlessness (often hysterical), shock—and a note of two Indopacific species of medusae, namely, *Chiropsalmus quadrigatus* [one of the Cubomedusae, with thick quadrangular umbrella and 4 marginal tentacles] and *Dactylometra quinquecirrha* [one of the Scyphomedusae, with thin discoid umbrella having numerous marginal lobes], both of which have a bad character.

The patient in the present case was a strong young male Filipino working waist-deep in a mangrove swamp. He suddenly called out that something had bitten his leg. One of his mates reached him quickly, just as he was collapsing, and by the time he had been laid on a raft (about two minutes) he was dead. It was thought that he had been bitten by a sea-snake, but a band of livid discolouration round one knee and spreading weals on the leg below could be attributed only to the tentacles of a jellyfish. At the post-mortem examination, apart from " definite evidence of status lymphaticus " (which is believed to explain the overwhelming suddenness of the fatality) and slight evidence of leprosy, the striking features were acute congestion of the viscera, serous oedema of lungs (with diapedesis) and acute toxic nephritis (with diapedesis)—the state of the kidneys probably explaining the lumbar pain that has characterized certain accidents with jellyfish.*

* It should be noted that Sir George NEWMAN (On the State of the Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1926. H.M.S.O.) after a discussion of recent work on the thymus and status lymphaticus, writes—" The conclusion to which we must come is, I believe, that *status lymphaticus* of our death registers and inquisitions is a mere verbalism and the current text-book teaching erroneous." See also GREENWOOD and WOODS, *Journal of Hygiene*, 1927, Vol. 26, p. 305.—ED.

In a postscript is a short hearsay account from a District Health Officer of another sudden death following the stings of a jellyfish—a man in a bathing party, about 110 yards from shore, showing sudden signs of distressed breathing, and being dead by the time he was brought to land by his mates.

A. A.

HOFFMANN (W. H.). La Ciguatera, die Fischvergiftung von Cuba. [**Ciguatera, the Cuban Fish-Poison.**]—*Abhandl. a. d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2.) [Festschrift NOCHT.] pp. 197–200. [Finlay Lab., Health Ministry, Harvard.]

With respect to the poisoning by fish known in Cuba as Ciguatera, the author calls to mind the distinction between fish that become poisonous when tainted (as may happen very quickly in the tropics), and fishes that are truly toxic either in their own tissues or organs, or by feeding on poisonous food. He states that there are distinguished physicians in Cuba who still think that Ciguatera is due to eating fish that has become tainted. The object of the paper seems to be to call attention, in the interests of the important and developing fishing industry of Cuba, to an exact study of a subject which at present is in confusion. The paper contains a list of fishes that are entirely prohibited in Cuba markets and another list of such as are prohibited only when full-grown or over a certain weight. [Neither of them, of course, attempting to distinguish between the species that are truly toxic and the species that are dangerous because liable to become tainted.]

A. A.

LEBER (A.). Ueber Tetrodonvergiftung. [**On Poisoning by Tetrodon.**] —*Abhandl. a. d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2). [Festschrift NOCHT.] pp. 641–643. With 6 figs. on 2 plates.

This is an account of a case of poisoning from eating globe-fish (species of Tetrodon).

The patient was a native of Amboina, in the Netherlands East Indies, about 30 years of age, and he was seen about 3 hours after the meal of globe-fish and rice. He was weary and languid from furious vomiting; the skin was suffused and somewhat swollen, and the conjunctiva injected; the pulse and respiration were quickened, and the temperature was 38° C. (and continued between 39° and 40° C. during the next day, when his condition was still serious). Albumin, urobilin, red blood corpuscles and casts were observed in the urine, and the evacuations were slimy and sanguineous. The suffusion of the skin was soon followed by general oedema, some subcutaneous haemorrhages about the elbows and knees and shins and the sides of the chest, and a general eruption of petechiae. On the 3rd day desquamation began, with some vesiculation; the palms of the hands were still swollen, and the temperature was subnormal. On the 6th day there was still some blood to be seen in the stools, and the signs of nephritis were less obvious. On the 9th day desquamation was still proceeding and albumen could still be demonstrated in the urine; but the patient was fairly recovered.

After the evacuation of the contents of the stomach and gut the treatment was directed to stimulation of the vasomotor control by injections of caffein and to checking haemolysis and diapedesis by calcium and other astringents.

A. A.

KATAGI (Ryuzo). Der Einfluss einiger erregender Gifte auf die Wirkung des Tetrodotoxins am Skelettmuskel. [**The Influence of Certain Stimulant Drugs upon the Action of Tetrodotoxin on Skeletal Muscle.**]—*Okayama-Igakkai Zasshi* (*Zent. d. Okayama Med. Gesellsch.*). 1927. Nov. Vol. 39. No. 11. (No. 454). German summary p. 1880. [In Japanese pp. 1869–1879. With 8 text figs. 17 refs.] Pharm. Inst., Univ., Okayama.]

Tetrodotoxin, from the ovary of Tetrodontidae (Globe-fish, Parrot-fish), besides its curari-like action upon the nerve-endings of the voluntary muscles, has been said also to paralyse the respiratory and vascular centres. According to the author's observations its secondary action is upon the muscle itself, and the best antidotes to this particular action are caffein, camphor, and strophanthin, especially the two first.

A. A.

CAWSTON (F. G.). **The Molluscan Hosts for the Bilharzia Parasites in Africa.**—*Kenya & East African Med. Jl.* 1928. Mar. Vol. 4. No. 12. pp. 390–391.

The species of mollusca favoured by the Bilharzia parasites of man in Egypt are of the genus Bulinus, and further south usually Physopsis—in Central Africa *Physopsis globosa*, an allied species in Zanzibar, and *Physopsis africana* in South Africa. The problem of identifying the molluscan host is complicated, since not only are the shells of the different species of Physopsis much alike, but also there are 4 species of Bilharzia that attack man, although two of them, probably, only accidentally since they possibly are parasites of goats and oxen. The author thinks that a careful description of the anatomy of the animal that secretes the Physopsis shells would be useful.

A. A.

BEQUAERT (J.). **Mollusks of Importance in Human and Veterinary Medicine. Parts I and II.**—*Amer. Jl. Trop. Med.* 1928. Mar. & May. Vol. 8. Nos. 2 & 3. pp. 165–182; 215–232. [91 refs.]

This is a conspectus of medical malacology. In the first section are enumerated and severally discussed the liver flukes, intestinal flukes, lung-flukes, and blood flukes pathogenous to man and his domestic animals (and also the Davainea tapeworm of the fowl), the flat-worms whose life-cycle is known to require the intermediation of a molluscan host. The second section deals with the classification and distinctive characters of the various molluscan intermediaries, taking into consideration not only the several families of land-snails, slugs, and aquatic (and amphibious) snails that supply specific hosts, but also including certain genera and families (Physa, the Apple-snails, and the

Viviparidae) which the medical malacologist should be able to recognize for other good reasons. The third and final section is devoted to prophylactic measures against the molluscan intermediaries—drainage, chemicals (quicklime, copper sulphate, ammonium sulphate, "lime nitrogen," calcium cyanide), natural enemies (domestic ducks, appropriate fishes, larvae of fire-flies which live largely on snails, all of which are critically discussed.

A. A.

Hall (E. Raymond). **An Outbreak of House Mice in Kern County, California.**—*Univ. California Public. Zool.* 1927. Feb. 21. Vol. 30. No. 7. pp. 189–203. [2 refs.]

This "outbreak" of mice (*Mus musculus* was the actual species) occurred in the winter of 1926–27 in the country around Buenavista Lake in California. The lake had then been dry for three years, for the last two of which its bed (an area of 35 square miles) had been extensively cropped with barley and other corn. The fallen grain and the stubble had supplied food and shelter for a healthy increase in the number of small rodent inhabitants of the area, and this increase had been unbounded because in 1924–25 the small carnivora that naturally keep rodents in check had been poisoned off by the local farmers. In the fall of 1926 sheep were put in to graze over the area and so destroyed the paradise of the mice, and the "wee sleekit cow'rin tim'rous beasties" thus dispossessed of their heritage revealed their enormous strength in an enforced migration into the surrounding country. The numbers seen and killed put the rats of the pied piper of Hamel into the shade; they "were to be reckoned in tens, possibly hundreds, of millions"; in one barn, on one estate, in one day approximately two tons of mice were sifted out of the grain; at the source of migration the author calculated the number to be 82,280 per acre.

[Those who in these days of hustle can find time for Darwin's *Origin of Species* will find in this story an excellent illustration of the argument of Chapter III of that immortal work.]

A. A.

Barraud (P. J.). A Revision of the Culicine Mosquitoes of India. Part XXIII. The Genus *Aëdes* (sens. lat.) and the Classification of the Subgenera. Descriptions of the Indian Species of *Aëdes* (*Aëdimorphus*), *Aëdes* (*Ochlerotatus*), and *Aëdes* (*Banksinella*), with Notes on *Aëdes* (*Stegomyia*) *vaiegatus*. —*Indian Jl. Med. Res.* 1928. Jan. Vol. 15. No. 3. pp. 653–670. With 40 figs. on 4 plates. [10 refs.]

Eysell (Adolf). Beiträge zur Lebensgeschichte von *Aëdes argenteus*, der Gelbfiebermücke.—*Abhandl. a.d. Gebiet d. Auslandskunde. Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2.) [Festschrift Nocht.] pp. 638–640.

Hinshaw (H. Corwin). Cultivation of *Trichomonas buccalis*, a Protozoan of the Human Mouth.—*Univ. California Public Zool.* 1927. Oct. 4. Vol. 31. No. 4. pp. 31–49. [13 refs.]

Kessel (John F.). Methods of Preparing Intestinal Protozoa for Study.—*China Med. Jl.* 1927. Dec. Vol. 41. No. 12. pp. 1030–1032.

Koch (Dorothy Ann). Relation of Moisture and Temperature to the Viability of *Endamoeba gingivalis* (Gros) in Vitro.—*Univ. California Public. Zool.* 1927. Sept. 3. Vol. 31. No. 3. pp. 17–29. With 2 text figs. [11 refs.]

LARROUSSE (F.). Présence du *Phlebotomus ingrami* Newst., à Entebbé (Uganda). —*Ann. Parasit. Humaine et Comparée.* 1928. Apr. 1. Vol. 6. No. 2. pp. 203–205. With 2 text figs. [9 refs.] [Inst. of Hyg. & Bact., Strasbourg.]

LEGENDRE (J.). L'attaque et la défense contre les moustiques.—*Presse Méd.* 1928. Mar. 3. Vol. 36. No. 18. p. 285–286. With 2 text figs. [12 refs.]

MARTINI (E.). Ueber Wolgamücken und Wolgamalaria.—*Verhandlungen der Internationalen Vereinigung für theoretische und angewandte Limnologie.* Vol. 3. pp. 282–290.

PRADO (Alcides). Notas sobre os anophelineos do estado de São Paulo. (Notes on the Anophelines observed in the State of S. Paulo.)—*Rev. Biologia e Hyg.* São Paulo. 1927. Vol. 1. No. 2. pp. 87–89. English summary p. 89. [4 refs.] [Inst. of Hyg., S. Paulo, Brazil.]

SHAKHOV (S.). *Anopheles plumbeus* Hal. in Ukraine.— *Rev. Microbiol. et Epidémiol.* 1928. Jan. Vol. 7. No. 1. English summary p. 137. [In Russian pp. 23–34. With 12 text figs. Refs in footnotes.]
Occurrence of this species in Ukraine is noticed.

ZSCHUCKE. Ein Beitrag zur Frage der Stechmückenbekämpfung.—*Abhandl. a.d. Gebiet d. Auslandskunde Hamburg. Univ.* 1927. Vol. 26. (D., Med. & Vet. Vol. 2.). [Festschrift NOCHT.] pp. 631–637. [1 ref.] [Bact. Inst., Anhalt District, Dessau]

TROPICAL MYCOLOGY.

Proceedings of the Royal Society of Medicine. 1928. May. Vol. 21. No. 7. pp. 1285–1305 (Sect. of Trop. Dis., Dermat. & Comp. Therap. pp. 113–133.) With 10 figs. [16 refs.]—**Discussion on Tropical Mycoses.** [MacLeod (J. M. H.), Ramsbottom (J.), Whitfield (Arthur), Manson-Bahr (P. H.), Gaskell (A.) & Dowling (G. B.).]. Les épidermomycoses [Langeron (M.).]

The main point which arises from this discussion is the urgent need for a satisfactory botanical classification of pathogenic fungi, which would permit of the rapid and certain identification of these fungi. Unfortunately, the "medical" or "clinical" classifications have become so firmly established that their replacement by botanical classifications is very difficult, although the similarity of lesions produced by widely different fungi, and the varying types of lesions produced by the same fungus, render clinical classifications of mycoses very unsatisfactory. Nevertheless, Vuillemin, Ota & Langeron and others, have made considerable progress in the direction of sound classification of pathogenic fungi, although their schemes are not so far generally used owing to the trouble and time involved in making the cultural studies which are necessary in order to determine the systematic position of a fungus in these systems.

Langeron's article is a general account of epidermomycoses, or cutaneous mycoses which involve the dermis and may or may not result in more or less deep ulceration. He briefly describes the different clinical types and gives lists of the various fungi which have been isolated from them. In many cases the pathogenicity of the fungi obtained is not at all certain.

P. Tate.

Durante (G.). Les mycoses méconnues. [**Unrecognized Mycoses.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1927. Nov. 17. Year 43. 3rd Ser. Vol. 51. No. 32. pp. 1513–1516.

The author considers that mycotic diseases are much more common and varied than is generally thought. He has observed the following cases. (1) In the kidney of a woman who died of eclampsia, staining with gram revealed the presence of long hyphae in the neighbourhood of the vessels. These hyphae did not provoke any reaction in the surrounding tissue. (2) Branched hyphae were found in the appendix of a young girl whose condition was doubtfully diagnosed as appendicitis. (3) Before confinement a woman had a temperature of 37·8–38·2° which persisted for five days after confinement, when she left the hospital in apparently perfect health. Twelve days later she returned in coma, died, and at the autopsy there was no sign of purpureal infection and no bacteria in the mucosa of the uterus, but numerous fungous cells, 4–5 μ in diameter, were present in some vessels of the uterus and were especially numerous in the capillaries of the lungs. (4) After much difficulty branched hyphae with dumb-bell shaped spores were revealed in a tumour of the thigh, diagnosed as a sarcoma. (5) Mycelium and spores of a similar nature were found in an osteosarcoma of the leg.

P. T.

Tálice (Rodolfo V.). Actinomicosis en el Uruguay. [**Actinomycosis in Uruguay.**]—*Bol. Inst. Clin. Quirurg.* Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 819–824. With 8 text figs. & 3 coloured figs. on 1 plate. [7 refs.] [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio, 7, 8 y 10, 1927.* pp. 711–716 & illustrations.]

The literature on the parasitic fungi in Uruguay is very meagre. Actinomycosis in animals, states the author, is not uncommon. Statistics published for Monte Video between 1900 and 1906 showed one in every 592 cows, with the disease localized in the udder, and in the slaughter-houses one in every 3,889, the head being the chief site. The first human case was recorded by Demicheri in 1899; the disease was conjunctival and was cured by extirpation. During the next 7 years two more were seen; one had the tongue affected, the other the lower lip. Since then, cases have been reported by Algorta and Scaltritti (cervico-facial) in 1907, by Devincenzi (gluteal) in 1908, by Nacio (caecal) and Quintela E., seven cases (muco-cutaneous) in 1924; three have been recorded since these, all with head lesions.

A coloured plate gives excellent reproductions of the histological changes.

H. Harold Scott.

Montpellier (J.), Catanei (A.) & Colonieu (L.). Sur un cas d'actinomycose de la face observé à Alger. [**A Case of Actinomycosis of the Face in Algiers.**]—*Bull. Soc. Path. Exot.* 1928. Mar. 14. Vol. 21. No. 3. pp. 197–200. [6 refs.] [Path. Anat. Lab., Faculty of Med., & Pasteur Inst., Algiers.]

A species of Microsiphonales possessing the principal characters of *Cohnistreptothrix israeli* (Kruse 1896) was obtained from a case of actinomycosis of the face in a native woman aged 16. Actinomycosis is rare in both man and animals in Algiers.

P. T.

Leão (A. E. de Arêa). L'intradermo-réaction dans l'actinomycose. Réaction spécifique de la peau avec le filtrat de culture d'*Actinomyces bovis*. [**Intradermal Reaction in Actinomycosis. Specific Skin Reaction with Filtrate from Culture of** *Actinomyces bovis*.]—*C.R. Soc. Biol.* 1928. May 25. Vol. 98. No. 17. pp. 1575–1576.

An intradermal reaction, similar to the reaction obtained with tuberculin in tuberculous subjects, resulted from the injection of 0·3 cc. of a filtrate from a culture of *A. bovis* Harz 1877, in the arm of two cases of actinomycotic mycetoma. The culture used for the filtrate was grown on ordinary broth pH 7·4 at 37° C. for 18 months, and then filtered through candles. The other arm of the patients was injected with the same amount of broth similar to that used for the culture, but no reaction was given. The reaction provoked by the filtrate reached its maximum at the end of 24 hours, persisted for 3 days, and then decreased and disappeared. Injection of the filtrate into 4 normal subjects did not provoke any reaction.

P. T.

Celidonio (Caio). Um caso de mycetoma primitivo do seio. [**Primary Mycetoma of the Breast.**]—*Brasil-Medico.* 1928. May 5. Vol. 42. No. 18. pp. 491–493. With 4 text figs.

The patient, a woman of 34 years, presented herself with a swelling in the right breast which had grown rapidly. No history of any injury was obtained. Sporotrichosis was diagnosed and total extirpation performed. Section showed the breast to contain small abscesses with connective tissue septa and granulomatous nodules containing pink granules.

Cultivation was successful on Sabouraud's medium and the culture has been sent away for identification, but at the time of writing the author had not received a reply. The patient left hospital, apparently quite cured, 15 days after the operation.

H. Harold Scott.

da Fonseca (O.) & Leão (A. E. de Arêa). Sur un cas d'acladiose à *Acladium castellanii* observé au Brésil. [**A Case of Acladiosis in Brazil.**]—*C.R. Soc. Biol.* 1927. Nov. 18. Vol. 97. No. 31. pp. 1361–1362. [Oswaldo Cruz Inst. & Dermat. Clinic, Faculty of Med., Rio de Janeiro.]

Cultures of *Acladium castellanii* were obtained from ulcerous skin lesions of the jaw and pre-sternal region of a Portuguese rag-dealer, aged 40 years.

P. T.

Torres (G. Magarinos). Histologie pathologique de l'acladiose. [**Pathological Histology of Acladiosis.**]—*C.R. Soc. Biol.* 1927. Nov. 18. Vol. 97. No. 31. pp. 1362–1364. [Oswaldo Cruz Inst., Rio de Janeiro.]

The portion of tissue examined was from a lesion on the face of Fonseca and Leão's case of acladiosis [see this *Bulletin* above]. There was mild inflammation in the destroyed regions of the epidermis; and a chronic inflammation of the dermis, more intense in the region of the papillae, in which, in addition to giant cells, isolated and in groups, there was a more or less diffuse infiltration with endothelial leucocytes. The lesions differ from tuberculous lesions in that the giant cells are not of the Langhans type, and nearly always may be seen to arise by the fusion of endothelial leucocytes; and in that there is never necrosis nor caseation.

P. T.

de Magalhães (Octavio) & Neves (Aroeira). [In Portuguese & French]. Contribuição ao estudo das Tinhas. *Trichophyton multicolor* n. sp. Contribution à l'étude des Teignes. *Trichophyton multicolor* n. sp. **Contribution to the Study of Ringworms.** *Trichophyton multicolor* **n. sp.**—*Mem. Inst. Oswaldo Cruz.* 1927. Vol. 20. No. 2. In Portuguese pp. 271–284. With 12 plates (2 coloured) [6 refs.] In French pp. 285–298. [Oswaldo Cruz Inst., Rio de Janeiro.]

The fungus was isolated from a ringworm patch on the scalp of a child, aged 10 years. Flask cultures on Sabouraud's maltose agar attain their maximum development in about 25 days and have a folded and convoluted, powdery surface. The central part is elevated and deep yellow, and is surrounded by a wine red zone, then by a clear yellow zone, and, finally, by a pure white peripheral border. White pleomorphic tufts appear about the 21st day. In culture it develops simple or compound bunches of sessile or pedicellate aleuries; terminal and intercalary chlamydospores; and, later, spiral hyphae and spindle-shaped chlamydospores.

It is easily inoculable to man and guineapig by scarification and behaves as an " endo-ectothrix."

The authors consider it to be a new species of *Trichophyton* belonging to the neo-endothrix group of Sabouraud, and name it *T. multicolor*.

P. T.

MARTINS (César). *Microsporum lanosum* et trois expèces cryptogamiques satellites isolées dans un cas de teigne tondante. [*Microsporum lanosum* **and Three Allied Species isolated from a Case of Tinea Tonsurans.**]—*C.R. Soc. Biol.* 1928. Apr. 27. Vol. 98. No. 13. pp. 1164–1166. [Bact. Lab., Faculty of Med., Oporto.]

Cultures were obtained from the scalp of a child and from hairs of a dog with which the child had played. The fungus is probably *Microsporum lanosum*, although it differs slightly in cultural characters and in the clinical aspect from Sabouraud's description. Three types of cultures were obtained which retained their differential characters throughout development, but the author is uncertain whether to regard them as distinct species or as different pleomorphic forms of *M. lanosum*.

P. T.

DE CASTRO (Abilio Martins). *Epidermophyton Rubrum*, Cast. Contribuição para o seu estudo clinico, experimental e parasitologico. [**Clinical, Experimental and Parasitological Study of** *Epidermophyton rubrum*.]—*Ann. da Faculdade de Med. de S. Paulo.* 1927. Vol. 2. pp. 441–474. With 34 figs. on 21 plates. French summary pp. 474–475. [10 refs.] [Dermat. & Syph. Clinic, Faculty of Med., S. Paulo, Brazil.]

Epidermophyton rubrum was isolated 6 times out of a total of 180 cases of dermatomycoses in S. Paulo. It was generally localized in the natural folds of the skin, but was once found attacking the finger nails. It was never seen to invade the hair either in human cases or in experimental infections of guineapigs. The lesions in man have a chronic evolution, may invade large areas, and generally take the form of " Eczema marginatum " of Hebra.

P. T.

MARTINS (César). *Malassezia furfur* observé dans un cas de pityriasis versicolor. [*Malassezia furfur* **in a Case of Pityriasis Versicolor.**]—*C.R. Soc. Biol.* 1928. Apr. 27. Vol. 98. No. 13. pp. 1166–1167. [Bact. Lab., Faculty of Med., Oporto.]

In scales from a case of pityriasis versicolor abundant yeast-like cells and mycelial fragments were found ; and, although cultures were not successful, the data are considered to be sufficient to justify the identification of the fungus as *Malassezia furfur*.

P. T.

CASTELLANI (Aldo). **Notes on Blastomycosis : its Aetiology and Clinical Varieties.**—*Proc. Roy. Soc. Med.* 1928. Jan. Vol. 21. No. 3. pp. 447–461 (Sect. Trop. Dis. & Parasit. pp. 1–15). With 10 text figs. [Ross Inst., London, & Tulane Univ. of New Orleans, U.S.A.]

The pathogenic yeast-like fungi are distributed in the genera *Saccharomyces, Cryptococcus, Endomyces, Monilia*, and *Blastomycoides* ; and the various blastomycoses which they cause are divided into the

types Blastomycosis verrucosa, ulcerativa profunda, purulenta profunda, glutealis, and furunculosa. Under these headings, short descriptions of the diseases and the causative fungi are given, together with brief descriptions of illustrative cases, particulars of which have been published in detail elsewhere.

P. T.

da Fonseca, Filho (Olympio) & Leão (A. E. de Arêa). [In Portuguese & English.] Diagnostico differencial entre as fórmas brazileiras de blastomycose. **The Differential Diagnosis between the Brazilian Forms of Blastomycosis.**— *Sciencia Med.* 1927. Nov. Vol. 5. No. 11. In Portuguese pp. 615–619. With 14 figs. on 8 plates. In English pp. 619–623.

The types of blastomycosis found in Brazil are quite distinct from those found in Europe, and resemble those found in the United States of America. Two types are found; one is the common form and is the same as that described in America as coccidioidal granuloma, caused by *Coccidioides immitis* [*Mycoderma immite* (Rixford and Gilchrist 1897)]; and the other is rare and is the same as systemic blastomycosis due to *Mycoderma dermatitis* (Gilchrist & Stokes 1898). A case illustrative of each type is described.

P. T.

da Fonseca (O.) & Leão (A. E. de Arêa). Réaction cutanée spécifique avec le filtrat de cultures de *Coccidioides immitis*. [**Specific Cutaneous Reaction with Filtrate from Cultures of** *Coccidioides immitis*.]—*C.R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1796–1797. [Oswaldo Cruz Inst. & Dermat. Clinic, Faculty of Med., Rio de Janeiro.]

In two patients with coccidioidal granuloma, specific cutaneous reactions were obtained, by injecting into the dermis of the forearm, the filtrate through a Berkefeld candle of culture fluid from cultures of *Coccidioides immitis* grown for 6 months at laboratory temperature on broth, pH 7·4. No reaction was given in cases of sporotrichosis, tropical ulcer, or by normal subjects.

P. T.

da Fonseca, Filho (Olympio) & Leão (A. E. de Arêa). [In Portuguese & English.] Reacção do desvio do complemento do granuloma coccidioidico. A sensibilidade do filtrado de cultura do *Coccidioides immitis* usado como antigeno. **Complement-Fixation Test in the Coccidioidal Granuloma, the Use of Culture Filtrates of "** *Coccidioides immitis* **" as Antigen.**—*Sciencia Med.* 1927. Dec. Vol. 5. No. 12. In Portuguese pp. 682–683. In English pp. 684–685.

—— —— & ——. Déviation du complément dans le granulome coccidioidal. Sensibilité du filtrat de culture de *Coccidioides immitis*, employé comme antigène.—*C.R. Soc. Biol.* 1927. Vol. 97. No. 36. pp. 1776–1777. [Oswaldo Cruz Inst. & Dermat. Clinic, Faculty of Med., Rio de Janeiro.]

Two antigens were used in the tests: (1) cultures of *Coccidioides immitis* grown for 2 months at laboratory temperature on agar pH 7·4,

emulsified in 0·85 per cent. sodium chloride solution, and heated for 2 hours at 60° C. : (2) another antigen prepared from the filtrate of cultures on broth pH 7·4, grown at laboratory temperature for 6 months. The first had a high, and the second a low, anti-complementary power. Reactions were tried with serum from 3 patients with coccidioidal granuloma, using serum of guineapig as complement. Both antigens gave complete fixation with 0·1 cc. of antigen and 0·1 cc. of the patient's serum ; but the results with the first were irregular. The second antigen is very sensitive and gave complete fixation with 0·006 cc. of patient's serum. No reaction was given with normal or syphilitic sera. With sera from patients with chromoblastomycosis and eczema marginatum positive reactions were given ; but only with 0·1 cc. and 0·2 cc. of serum respectively.

P. T.

DA FONSECA (O.) & LEÃO (A. E. de Arêa). Dermatite blastomycosique. [**Blastomycotic Dermatitis.**]—*C.R. Soc. Biol.* 1928. Mar. 2. Vol. 98. No. 8. pp. 622-623. [Oswaldo Cruz Inst., & Dermat. Clinic, Faculty of Med., Rio de Janeiro, Brazil.]

This is the first case of blastomycotic dermatitis recorded in Brazil. The patient was a white labourer aged 39. The disease began as an ulceration of the left foot and extended up the leg and attained the pubic region. It appeared as nodules which ulcerated and healed, leaving whitish retractile scars. Multiple ulcerous lesions then appeared on the face, involving the eye-lids, malar region, chin and cheeks, and, later, the mucosa of the mouth. Death occurred from cachexy ; and at autopsy it was found that the condition was not generalized.

In the tissues the parasite appeared as spherical double-contoured cells, reproducing by budding. The parasite was not cultivated, but it appears to be the same as *Mycoderma dermatitis* (Gilchrist & Stokes 1898).

P. T.

MAZZA (Salvador) & PARODI (Silvio). Micosis laríngea con parásitos análogos a los " Megalosporidios " de Posadas. (Nota previa.) [**Laryngeal Mycosis associated with a Parasite allied to the Megalosporidium of Posadas.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1927. Vol. 3. No. 26. 8 pp. With 5 text figs. [1 ref.]

The patient from whose larynx a tumour the size of a nut (nuez) was removed post-mortem had exhibited during life a pre-laryngeal abscess. This had been operated upon, but did not heal, there being a residual fistula which was thought to be tuberculous.

Examination of the tumour showed that within the granulation tissue were numerous masses varying in size to 80 microns, rounded or oval. They contained many small bodies, irregular or roughly quadrangular in shape, each 4–5 microns in diameter. These might be found singly (from bursting of the larger mass) or aggregated within a cyst-wall. Some of these " sporangia " were filled with the small bodies, in others they were disposed peripherally, surrounding a clear space internally.

The author does not identify the " parasite " but recognizes its close similarity morphologically and in pathogenicity to that described by POSADAS in 1898 and denominated Megalocytosporidium or Megalosporidium [=*Mycoderma immite* (Rixford & Gilchrist 1897)].

He regards it as one of the parasitic Phycomycetes and it causes death by generalization ; it does not form hyphae or mycelium when parasitic in the body, but grows as sporangia and belongs to the family Mucoraceae.*

H. Harold Scott.

da Fonseca (O.) & Leão (A. E. de Arêa). Sur le granulome coccidioidal. Formes d'évolution du parasite dans les tissus, dans le pus des ganglions lymphatiques et dans les cultures. Position systématique du *Coccidioides immitis*. [**On Coccidioidal Granuloma. Evolution Forms of the Parasite in the Tissues, Pus of the Lymphatic Glands, and in Culture. Systematic Position of** *Coccidioides immitis*.]—*C.R. Soc. Biol.* 1928. Mar. 2. Vol. 98. No. 8. pp. 619–621. [Oswaldo Cruz Inst., & Dermat. Clinic, Faculty of Med., Rio de Janeiro, Brazil.]

In the tissues and in the pus the parasite appears as spherical cells, with a double contour, measuring 5–80 microns in diameter. Similar cells appear in culture only when the fungus is grown in broth or on agar media of pH 7·4. On media containing sugar, spherical cells are formed for the first few days, but then only sterile, septate, hyphae are developed. Reproduction is exclusively by means of endogenous spores, which are liberated by the rupture of the mother-cell ; or, apparently, through pores in the membrane of the mother-cell.

P. T.

Campos (Ernesto de Souza) & de Almeida (Floriano Paulo). Contribuição para o estudo das "Blastomycoses" (Granulomas Coccidioides) observadas em São Paulo. [**Blastomycoses (Coccidioidal Granuloma) in São Paulo.**]—*Ann. da Faculdade de Med. de S. Paulo*. 1927. Vol. 2. pp. 203–215. English summary pp. 216–220. With 21 figs. (6 coloured) on 15 plates. [26 refs.] [Microb. Lab., Faculty of Med., S. Paulo, Brazil.]

Histological study of 12 cases of blastomycoses in S. Paulo showed that 10 of them were similar, the parasites in each varying in size from minute coccus-like bodies to cells 25 to 30 microns in diameter, and never showing yeast-like budding. Comparison with two cases of coccidioidal dermatitis from California and Maryland, U.S.A., showed that they differed from these by not having intracellular spores. The two remaining cases differed from the first 10 and also from each other. In one the parasites were small and scattered in the tissue ; while in the other many of the parasites exhibited yeast-like budding.

P. T.

Riesman (David) & Ahlfeldt (Florence E.). **Coccidioidal Granuloma. I. Review of the Clinical Data with Report of a Pennsylvania Case.**—*Amer. Jl. Med. Sci.* 1927. Aug. Vol. 174. No. 2. pp. 151–167. [33 refs.] [William Pepper Lab., Univ. Pennsylvania.]

The patient was a boy aged five, and the disease was of one year's duration and terminated fatally. The chief symptoms were continued

* [The systematic position of this fungus is very uncertain ; it is at present regarded as belonging to the Arthosporaceae and from cultural characters is placed in the genus *Mycoderma*.—P. Tate.]

low fever, enlarged glands in the neck and back ; and, later, the development of multiple abscesses on head, neck and chest. Spherical cells, 15 to 40 microns in diameter, with a double contoured capsule, were present in the tissues. Sometimes they were filled with spores, but no budding forms were seen. Cultures were obtained of a sterile mycelium.

Intravenous, intraperitoneal and subcutaneous inoculation was positive in guineapigs and rabbits, resulting in nodule formation in the lungs, spleen, liver and testicles. The organism was present in the nodules and recultivation was possible from them.

A brief review of 87 cases is given. 70 of the 78 cases in which the place of residence is stated, occurred in California, 19 being in the San Joaquin Valley. The lesions may remain localized and superficial, in which case the disease may run a chronic course from 10–15 years ; but as soon as the condition becomes systemic it takes an acute form and is rapidly fatal. The only effective treatment is excision of the lesions while they are localized. Generalized cases are always fatal.

P. T.

DE ALMEIDA (Floriano Paulo) & DOS SANTOS (Lourival F.). Sobre um caso de " Blastomycose " pulmonar. [**A Case of Pulmonary Blastomycosis.**]—*Ann. da Faculdade de Med. de S. Paulo.* 1927. Vol. 2. pp. 221–226. With 5 figs. on 3 plates. English summary p. 226. [19 refs.] [Microb. Lab., Faculty of Med., S. Paulo, Brazil.]

In sections of a lung numerous giant cells were seen containing parasites, which the authors consider to be similar to the fungus which is the most common cause of blastomycoses in S. Paulo.

P. T.

SANDERSON (Everett S.) & SMITH (Dudley C.). **The Effect of Gentian Violet on the Organism of Blastomycotic Infection.**—*Arch. Dermat. & Syph.* 1927. Aug. Vol. 16. No. 2. pp. 153–155. With 5 figs. [6 refs.] [School of Med., Univ. of Virginia.]

The organism used in the tests was recently isolated from a case of systemic blastomycosis [*Mycoderma dermatitis* ?]. The growth of cultures on agar plates was completely inhibited by concentrations of gentian violet, up to and including 1 in 500,000 ; and there was marked inhibition with a concentration of 1 in 1,000,000. It is suggested that intravenous injections of this dye might be efficacious in treating systemic blastomycosis in man.

P. T.

NICAUD (P.). Les réactions humorales dans l'aspergillose. [**Serological Reactions in Aspergillosis.**]—*Presse Méd.* 1927. Dec. 7. Vol. 35. No. 98. pp. 1489–1490. With 1 text fig. [20 refs.]

Serological tests were made with cultures of *Aspergillus fumigatus* isolated from a case of pulmonary aspergillosis. Cultures of the fungus on serum from the patient did not cause precipitation or agglutination, and the serum exercised no fungicidal action. Sporoagglutination and the fixation reaction gave negative results. Cuti- and intradermal reactions were tested with antigens prepared in three different ways from cultures on Raulin's fluid. The only antigen which gave good results was prepared as follows. The mycelium from 5 Roux flasks, each containing 150 cc. of Raulin's medium and incubated at 33° for 48 hours, was ground up for 24 hours in a glass bead apparatus. 2 cc. of the ground mycelium were diluted in 10 cc.

of 0·77 per cent. sodium fluoride solution ; and the suspension heated to 60° C. for 30 minutes. The cuti-reactions were not satisfactory, but, with this antigen, marked and definite intradermal reactions were given with cases of pure aspergillosis, and with a mixed infection of tuberculosis and aspergillosis ; while the controls, normal subjects and a case of pure tuberculosis, were negative. Attempts at therapeutic treatment with the antigen as vaccine had to be abandoned, owing to its inducing an intense reaction at the infected region of the lungs.

P. T.

Sica (Enrico). Bronco-Pneumonicosi Aspergillina. [**Pulmonary Aspergillosis.**]—*Riforma Med.* 1927. Sept. 19. Vol. 43. No. 38. pp. 896–897. With 3 text figs. [Hosp. for Incurables, Naples.]

Details are given of a man who for nearly ten years had suffered from a troublesome cough, with attacks of shivering and fever. Such patients are usually diagnosed as phthisical, but repeated tests failed to reveal the tubercle bacillus, and the chief clinical differences are the absence of wasting and the scarcity of physical signs.

Aspergillus fumigatus was grown from the sputum of this patient, and cure obtained by potassium iodide. At the end of 7 months' treatment he was taking 180 drops daily of a saturated solution.

H. Harold Scott.

Galbreath (W. R.) & Weiss (Charles). **Bronchomoniliasis in Porto Rico.**—*Porto Rico Rev. of Public Health & Trop. Med.* 1928. Mar. Vol. 3. No. 9. pp. 367–375. [17 refs.] [Presbyterian Hosp., San Juan, P.R., & School of Trop. Med., Univ. Porto Rico.]

In addition to a short general review of the subject, a case of bronchomoniliasis occurring in Porto Rico is described. The condition was of over 10 years' duration and clinically simulated acute pulmonary tuberculosis, but tubercle bacilli were not found in the sputum. Yeast-like cells were present in the sputum and cultures of *Monilia psilosis* were repeatedly obtained from it.

P. T.

Van den Branden (F.) & Moreels (W.). Un cas de bronchomycose due à des aspergillus diagnostiqué au Stanley-Pool chez un noir. Note préliminaire. [**A Case of Bronchomycosis due to an Aspergillus at Stanley-Pool. Preliminary Note.**]—*Ann. Soc. Belge de Méd. Trop.* 1927. Nov. Vol. 7. No. 2. pp. 95–97. [1 ref.] [Leopoldville Lab., Belgian Congo.]

Cultures of an Aspergillus were obtained from the sputum of a negro, whose condition was clinically diagnosed as pulmonary tuberculosis, but in whose sputum the Koch bacillus could not be detected.

P. T.

Magalhaes (O.). Sur les lésions, provoquées par l'*Oidium brasiliense* (O. Magalhaes, 1914). [**On the Lesions caused by** *Oidium brasiliense.*]—*C.R. Soc. Biol.* 1927. Oct. 21. Vol. 97. No. 27. pp. 1093–1094.

The lesions caused by *Oidium brasiliense* were studied in man, teetee and squirrel monkeys, black and brown rats, mouse, guineapig and rabbit. Generalized and local lesions result. The former are haemorrhages and necroses, and the latter are nodular. The nodules do not show the three zones of Gougerot, and are characterized by : the

presence of the parasite in the resistant stage ; absence of giant cells and of epithelioid cells ; infiltration with polynuclears, and sometimes eosinophiles and mononuclears ; absence of perivascular infiltration with mononuclears ; presence of inflammatory connective tissue encircling the centre of the nodule ; and absence of " plasmazellen " and fuchsinophiles.

The fungus appears in the tissues either in the form of yeast cells or as mycelium. Sometimes small abnormal coccus- or bacillus-shaped invasions forms are found. Large resistant forms arranged in mosaics and yeast cells also occur.

P. T.

ORLANDI (Noel). Granulom der Conjunctiva durch " Rhinosporidium seeberi." (Erstmalige Beobachtung in Europa.) [**Granuloma of Conjunctiva caused by** *Rhinosporidium seeberi.*]— *Virchows Arch. f. Path. Anat. u. Physiol.* 1926. Vol. 262. pp. 314–327. With 6 text figs. (1 coloured). [32 refs.] ["Ospedale Maggiore," Milan.]

This case of rhinosporosis is the first to be observed in Europe and the first in which the subject was a woman. It is the seventh recorded case in which the conjunctiva was attacked.

The patient, a woman aged 56, was wounded in the right eye by a splinter of wood, which caused a slight contusion on the eyeball. On this spot, a slowly enlarging growth arose and attained about the size and form of a lentil. It was surgically removed ; and again grew to about half the size in a year and a half, and was again removed. After a few months it grew once more and was removed for the third time. This seemingly resulted in a cure, as there has been no renewed growth for several months.

The author's observations confirm ASHWORTH'S results as regards the morphology and development of the parasite [ASHWORTH 1923. *Trans. Roy. Soc. Edin.*, Vol. 53, pp. 301–342 ; this *Bulletin*, Vol. 20, p. 451]. He agrees with ASHWORTH in considering the organism to be a Phycomycete and in placing it provisionally in the family *Olpydieae* of the *Chytridinaceae*, under the name *Rhinosporidium seeberi* (Wernicke, 1903).

P. T.

SMITH (E. C.). **Moniliasis Linguae.**— *Jl. Trop. Med. & Hyg.* 1928. May 1. Vol. 31. No. 9. pp. 101–102. With 3 text figs. [2 refs.] [Med. Research Inst., Lagos.]

A thrush-like affection of the tongue is common in infants in Lagos. Yeast-like cells and mycelial fragments are present in the lesions, from which cultures of a Monilia belonging to the *Monilia pinoyi* group of Castellani were obtained.

P. T.

LANGERON (Maurice). Les prétendues mycoses de la rate. [**So-Called Mycoses of the Spleen.**]—*Ann. Parasit. Humaine et Comparée.* 1928. Apr. 1. Vol. 6. No. 2. pp. 211–220. [3 refs.] [Parasit. Lab., Faculty of Med., Paris.]

——. Que penser des mycoses de la rate ?—*Presse Méd.* 1928. Apr. 18. Vol. 36. No. 31. pp. 481–482. [6 refs.]

From a review of the literature on the subject and from personal investigation of certain of the cultures supposed to be isolated from

cases of splenic mycoses, and of a number of spleens which were considered to be infected, the author concludes that there is no justification for considering that there is a mycotic splenomegaly. He considers that the fungi which have been obtained in cultures from spleens are accidental contaminations of common non-pathogenic moulds; and that the so-called mycelial filaments and conidial structures in the spleens are really pathological modifications of fibrin and collagen in haemorrhagic zones.

P. T.

Presse Médicale. 1928. May 9. Vol. 36. No. 37. pp. 579–581. —A propos du mémoire de M. Langeron: Que penser des mycoses de la rate? Réponses de MM. Nanta, P. Emile-Weil, Pinoy. Réponses aux objections de MM. Nanta, P. Emile-Weil et Pinoy par Maurice Langeron. [**Concerning Langeron's Article on Splenic Mycoses. Replies of Nanta, P. Emile-Weil & Pinoy. Reply to these Objections by Langeron.**]

Nanta replies to Langeron's criticism by saying that "mycotic splenomegaly" was his first hypothesis; that the filaments may be demonstrated apart from any haemorrhagic zones (i.e., in ganglia); that nodules similar to Gandy-Gamna nodules have been obtained experimentally in the foot of a pigeon by inoculation with a Madurella; that the work of Jadasshonn and Bloch on "haematogenous trichophytoses" in man suggest the manner in which the fungus could invade the spleen; and, finally, that Ota has found *Aspergillus jeanselmei*, a parasite of the skin of man, in the spleen of a guineapig.

Emile-Weil's chief points in support of the mycotic theory are: in addition to modified mycelial filaments, fructifications and Aspergillus heads are present in the nodules; the heads and filaments are phagocytosed; he obtained pure cultures of the Aspergillus in 3 out of 6 cases and Nanta obtained the same species in 3 out of 15 cases; the deviation of the complement reaction often permits of a clinical diagnosis; and iodine treatment is effective.

Pinoy first says that Langeron confuses mycotic and bacterial splenomegaly. He considers *A. nantae* to be only a biological form of *A. nidulans*. Lucet, he says, long ago caused splenomegaly in guineapigs by intraperitoneal inoculation with spores of *A. fumigatus*. He denies that his cultures were contaminations and gives particulars of the technique employed in making the inoculations. The absence of hollow filaments resisting 40 per cent. potash, he explains as being due to Langeron's not examining a sufficient number of nodules, as filaments attacked by the organism disappear owing to gelification of their membrane.

Langeron replies to Nanta by giving the reference to his first note on the subject in which the etiological agent is referred to as a spirochaete and a streptobacillus. The question of "haematogenous trichophytoses" is at present much disputed, especially in Italy. In connection with Ota's work on *A. jeanselmei*, no animal showed any macroscopical modification of the spleen so that it was not "splenomegaly." To Emile-Weil he replies that serological reactions are of very little or no value when dealing with fungi, and that iodine treatment is not specific for mycoses. To Pinoy he replies that his articles deal only with "mycotic splenomegaly" and that Pinoy himself has described

splenomegaly first as being due to a Synbacterium and later declared that the same parasite was a fungus. He refuses to regard the few negative characters given of *A. nantae* as being sufficient to distinguish it from other species of Sterigmatocystis. LUCET never found spontaneous mycosis of the spleen in guineapigs, and only in experimental mycoses of them, and rarely in other animals, did lesions in the spleen occur. As these lesions resulted from massive doses with spore emulsions the results are not reliable in comparison with spontaneous disease. Finally, he points out that the walls of fungi are formed of a substance analogous to chitin of insects of which no gelification is known to occur.

P. T.

OBERLING (Ch.). Le rôle pathogène de la mycose splénique de Nanta. [**Pathogenicity of Nanta's Splenic Mycosis.**]—*Presse Méd.* 1928. Jan. 4. Vol. 36. No. 1. pp. 2–3. [6 refs.]

As a result of the recent work of NANTA, PINOY, WEIL, ASKANAZY, etc., on mycotic splenomegaly, the author reinvestigated his collection of over 200 spleens obtained by operation or at autopsy. 24 of them were found to have mycotic infection, and to contain the Gandy-Gamna nodules shown to be of mycotic origin by NANTA and others. In 10 of these cases, the mycelium was calcified and degenerate; but in the remaining 14 the mycelium was well preserved. In all of the 4 cases of Banti's disease mycotic nodules were found; and other cases in which they were found include calculous cirrhosis; lymphoid leucaemia; congenital icterus; cicatrices of infarctus; pigmentary cirrhosis; splenomegalic cirrhosis with haemolytic icterus; and Algerian splenomegaly.

In consequence of the variety of pathological conditions in which mycotic infection is found, the author considers that it is only a secondary infection of spleens already diseased in some manner. The mycotic infection may follow one of two courses: (1) The mycosis develops for a time and then retrogresses and the lesions undergo cicatrication; and this appears to be true of the majority of the author's cases. (2) In some cases the mycosis develops rapidly and infiltrates the spleen with mycotic nodules. In the latter case it probably influences the clinical symptoms and ultimately gives to symptoms entirely due to the mycotic infection.

P. T.

POPPER (M.) & RAILEANU (C.). Sur la splénomégalie mycosique. [**On Mycotic Splenomegaly.**]—*Bull. et Mém. Soc. Méd. Hôpit. de Bucarest.* 1928. Feb. Vol. 10. No. 2. pp. 48–52.

Examination of the collection of spleens in the clinic [?Bucarest, Roumania] resulted in Gamna-Gandy nodules being found in two of them, and, in one, structures considered to be fragments of mycelium and fructifying heads of aspergillus. The clinical symptoms were cirrhosis of the liver with splenomegaly and ascites, and, in one case, inflammation of the portal vein.

P. T.

Gamna (Carlo). A propos de mycose splénique. [**On Splenic Mycosis.**] —*Presse Méd.* 1928. Mar. 21. Vol. 36. No. 23. p. 357. [Med. Clinic., Univ. Siena.]

The author deprecates the manner in which recently certain authors, following the work of Nanta & Pinoy, etc., on splenic mycosis, have accepted the presence of "Gamna nodules" as being diagnostic of splenic mycosis and regard these nodules as "mycotic tubercules." He has described these nodules from many different diseases of the spleen, and maintains that there is as yet no decisive evidence that the lesions are specifically mycotic. He questions whether the filaments in the spleens are really of mycelial origin, and points out that in only 3 or 4 cases have cultures of fungi been isolated from spleens, and, even in these, the pathogenicity of the fungus is still to be proved. He agrees with Oberling's recent criticisms on the subject. [See above.]

P. T.

Gosset (A.), Bertrand (I.) & Magrou (J.). Recherches expérimentales sur l'aspergillose splénique. [**Experimental Researches on Splenic Aspergillosis.**]—*C.R. Soc. Biol.* 1928. Mar. 16. Vol. 98. No. 10. pp. 769–770. [1 ref.]

A suspension of aspergillus spores [*A. nantae?*] in physiological serum was injected into the spleen and perirenal fat of a rabbit. The animal underwent progressive cachexy and, a month later, was found to have developed ascites; enlarged spleen with indurated zones; a lobulated mass in the mesentery; and pseudo-tuberculous lesions in the lungs. With the exception of spherical, brown masses, 15–20 microns in diameter, which were found in the spleen and ascites fluid, and are considered by the authors to be disorganising fungus structures, no mycelium was found in the organs or in the various lesions.

P. T.

Petzetakis (M.) & Papadopoulo (J.). Sur un champignon isolé en culture pure de la rate d'un cas de splénomégalie égyptienne. [**On a Fungus obtained in Pure Culture from a Case of Egyptian Splenomegaly.**]—*C.R. Soc. Biol.* 1928. May 21. Vol. 98. No. 16. pp. 1391–1392.

Cultures of a fungus, as yet unidentified, were obtained by inoculating Sabouraud's medium with splenic pulp obtained by puncture from a case of Egyptian splenomegaly.

P. T.

Verga (Pietro). Pseudotumore della milza. [**False Tumour of the Spleen.**]—*Pathologica.* 1928. Jan. 15. Vol. 20. No. 435. pp. 7–13. With 6 figs. on 2 plates. [22 refs.]

Conditions closely resembling, if not identical with, that described by the author have been recorded under various names, of which the following may be mentioned: Splen-adenoma (Orth), circumscribed fibrous induration (Virchow *et al.*), nodular hyperplasia (Pfister *et al.*)

splenoma (CESARIS-DEMEL). Some have regarded the enlargement as merely hyperplastic, others as a blastoma. It is found only in elderly subjects.

The author's patient was a woman of 76 years, dying with signs of bronchopneumonia. At autopsy there were atheromatous and analogous vascular changes. The organs were mostly natural for a woman of this age except the spleen and one kidney. The left kidney was only one-third the normal size. The spleen measured 10 by 6 by 4 cm., and weighed 140 gm., and showed many small nodules, one 3·5 cm. in diameter. Microscopically, there was excess of fibrous tissue in strands radiating to the capsule, the meshes containing in the central parts mainly lymphocytes with plasma cells and polymorphonuclears more externally. In places there were small aggregations of coccoid bodies and at the periphery of these mycelial filaments ; the cocci were, perhaps, mould-spores.

The author discusses briefly the nature of the condition ; there is no proof of blastoma morphologically, and he believes it to be inflammatory, with slow fibrosis associated with mycotic infection.

H. Harold Scott.

REVIEWS AND NOTICES.

GILL (Clifford Allchin). [Lt.-Col. I.M.S., Director of Public Health, Punjab, M.R.C.S. (Eng.), L.R.C.P. (London), P.D.H. (Eng.), D.T.M. & H. (Eng.), etc.] **The Genesis of Epidemics and the Natural History of Disease. An Introduction to the Science of Epidemiology based upon the Study of Epidemics of Malaria, Influenza, and Plague.**—pp. xxvi+550. With 19 charts, 10 maps & 1 diagram. 1928. London: Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, W.C. 2. [21s.]

Lieutenant-Colonel Gill's book supplies further proof, if proof were needed' of the fact that a Sydenham revival is in progress. In his preface, he tells of the conception in 1914, of "a working hypothesis, which appeared to resume the phenomena exhibited by epidemic malaria"; while, after the war, in 1921, this hypothesis assumed concrete shape in a paper entitled "The Rôle of Meteorology in Malaria"; and the author was prompted later to take up the study of epidemics generally. "Plague, relapsing fever, influenza," Lieutenant-Colonel Gill says, came under scrutiny, "owing to the fact that great epidemics of these diseases were apt to obscure the epidemiological picture," and "it was during the course of these subsidiary investigations that the remarkable similarity of all epidemical phenomena first came prominently to notice." Lieutenant-Colonel Gill seems thus to have been led to the "Quantum Theory" and the "Unitary Mechanism of Epidemics" very much as SYDENHAM was led, 250 years ago, to his doctrine of interaction between infectious particles and the blood and humours of the body (*Medical Observations*, I.1.6) and to his Epidemic Constitutions. It is the old story of Saul, over again, going out on a subsidiary quest and finding a kingdom. Lieutenant-Colonel Gill, moreover, seems to have journeyed along the same road, in his study of the epidemic wave, as that followed by FARR, RANSOME, POWER, WHITE-LEGGE and Shirley MURPHY, and later by Owen H. PETERS, BROWNLEE, Ross and many another epidemiologist in more recent years.

Lieutenant-Colonel Gill comes right up against the main problem, of course, when he tackles influenza. We find him, at first (p. 220), attempting "to explain pandemics of influenza in terms of a change of quantum rather than as the expression of a qualitative change affecting any of the factors." SYDENHAM was presented with a similar difficulty in 1675. On p. 454, however, Lieutenant-Colonel Gill is laying stress "in large measure" on "the immunity factor." Moreover (on p. 477, para. 2), he observes, "it is not open to doubt that the recent pandemic of influenza, as well as some of its predecessors, was preceded, and followed, by a change in the quality of disease, and, more especially, by the relatively frequent occurrence of certain peculiar diseases of the nervous system, referred to by SYDENHAM as 'nervous and comatose diseases,' and now known as polio-myelitis, cerebro-spinal fever and *encephalitis lethargica*."

On p. 479 Lieutenant-Colonel Gill says "the theory of epidemic constitutions is not uniformly applicable to all pestilences," but he agrees that, in influenza, "it does afford an explanation of certain concomitants."

Two perusals of "The Genesis of Epidemics" have convinced the present reviewer that it is a work to be read, marked, learned and inwardly digested. Time has not permitted of comment upon the many questions of special importance, in connexion with Indian epidemiology, as seen from Lahore; and space has imposed strict limitation as regards such problems of general epidemiological interest as may come within the ken of an observer in these islands. SYDENHAM said if you would fish out the species of a continued fever you must choose as your field of observation some large and populous place, and it would certainly appear from Lieutenant-Colonel Gill's book that even if the "Laws of Nature," as revealed in

epidemic manifestations, be mystical and inscrutable, they at any rate seem to operate in a remarkably similar way, whether they be studied in the Punjab or in SYDENHAM's London.

W. H. Hamer.

MAYO (Katherine). **Mother India.**—391 pp. 1927. London: Jonathan Cape, 30, Bedford Square. [Paper 7s. 6d., Cloth 10s. 6d.] [Received for review May, 1928.]

Miss Mayo is not the first American who has called attention to some of the weak spots in Indian life and character. In 1912 Price COLLIER wrote "The West in the East." Being a man he could not obtain first hand evidence as to the lives of the women of India; but concerning the trammels of "caste," the tyranny of the Brahmins and the horrors of the worship of Kali by Hindus, he was in entire agreement with the authoress of "Mother India." The book is not concerned alone with sociology; it appeals also to those who study medicine, especially obstetrics and the care of children, and to the anthropologist. You cannot raise a race, healthy in mind and body, from faulty and unfavourable foundations, and the foundations of all nations are the mother and child. When first published this book raised a storm of criticism, but its truth within limits cannot be denied. It was not Miss Mayo's object to speak only of pleasant things. It is well for a nation to consider the weak spots. The first chapter tells of a visit to Kali's temple in Calcutta with its strange ceremonies and rivers of blood from animals slain for sacrifice. Then follow many pages dealing with child marriage. Religion and tradition demand that every Hindu girl shall be married before she reaches puberty, and she expects motherhood at 10 to 12 years of age. In most cases boy and girl are betrothed and separated until they reach the age of puberty, when the final nuptial ceremonies are performed. In spite of this immaturity these boys and girls raise many babes, out of the thousands born only to die early, and the population of India increases. The most objectionable form of child marriage occurs when a grown man, he may be a widower of fifty, takes a child wife to his home before she is physically fit for the life. In many cases the results are terrible, either death of the girl or crippling for life. The legal age of consent is 12 years, and if a violated wife dies under age the husband is regarded as a criminal and treated as such—when discovered. In an Appendix Miss Mayo gives a list of some of these pitiable cases (*Legislative Assembly Debates*, 1922, p. 919). Here we may state that Miss Mayo writes not only from observation but from careful reading of official documents and Indian books and journals; full references are given in the "foot-notes." In child-birth the conditions are as bad as can be. Unclean, the woman is put into the worst room in the house, often into an outhouse, and she is attended by the local dhai, a midwife, compared to whom "Mrs. Gamp" was a pattern of skill and cleanliness. Much is being done to improve Indian dhais through the Government medical departments and in the hospitals for women; but the number that seek education is small, and not enough for the millions who need their help. We next come to the sad life of the Hindu widows, a life doubly sad when we consider that many of them are children and were wives only in name. The oppression of caste rules and the power of the Brahmin priests are fully dealt with. The smallest details of life are governed by religion and ruled by the Brahmins, of whom it may be said:

> "There are who lord it o'er their fellow men
> With most prevailing tinsel."
>
> (Keats.)

The drawbacks of life secluded behind the purdah, the want of education, absence of sanitation, economic and political difficulties, well known to those who work in the Indian Empire, are fully discussed. Miss Mayo, so far as her information goes, gives credit to English and Indian men

and women who have worked for improved conditions and she records evidence of better things with full discussion and statistics. Although Miss Mayo's strictures apply to at least two-thirds of the population they do not apply to everyone. Except for the drawbacks of "purdah" life and neglect of education they do not apply to the Mahommedans, only in part to the Sikhs and not at all to the Parsees and some other small communities. The criticisms are in the main true; but they are not new. For about one hundred years an English Government has been striving to improve the social and economic conditions of the people of India. But traditions and customs backed by religion are serious obstacles, and our hands are tied by the Proclamation of 1858 and subsequent Acts. There is a striking instance quoted on page 32 of "Mother India": The law forbidding traffic in Obscene Publications carries the following amazing exception:—

> "This section does not extend to any book, pamphlet, writing, drawing or painting kept or used *bona fide* for religious purposes, etc."

Reform to be general and of any value must begin with the Indian people themselves. We hear and read the cry: "India for the Indians." A nobler and more useful slogan would be: "Indians for India."

J. H. Tull Walsh.

i. CALCUTTA. **Annual Report of the Calcutta School of Tropical Medicine Institute of Hygiene and the Carmichael Hospital for Tropical Diseases 1927.** [MEGAW (J. W. D.), Director.]—107 pp. With 8 maps & 1 chart. 1928. Calcutta: Bengal Govt. Press.

ii. INDIAN MEDICAL GAZETTE. 1928. Vol. 63. Supplement to May Number. 48 pp.—**The Indian Medical Year. Being a Review of the Progress of Medicine, Surgery and Public Health in India during 1927.** Edited by Lt.-Col. R. KNOWLES, I.M.S. [1 Rupee.]

i. This concise and well-written Report shows that excellent work has been done during 1927 and the Director regrets that the teaching staff is not yet complete owing to want of funds; a professor of biochemistry and a professor of helminthology are urgently needed. The school is for research work and post-graduate teaching and deals only with tropical diseases. A table on page 15 shows that applications for admission, chiefly from Bengal, come from all parts of the Empire and even from outside: Egypt, Africa, Dublin and New York. Owing to want of space and limited staff many applicants must be refused. The main part of the Report is occupied by special reports from the various professors: Tropical Medicine (MEGAW) contains seven maps showing the distribution of: leprosy, relapsing fever, endemic goitre, filariasis, lathyrism, guinea-worm and osteomalacia. Then follow reports on bacteriology, pathology and helminthology (ACTON); protozoology (KNOWLES); pharmacology (CHOPRA); immunology (LLOYD); entomology (STRICKLAND); hygiene (STEWART); public health laboratory practice (KHAMBATA) and chemistry (GHOSH).

In the several Research Departments much good work was done with funds provided by the 'Indian Tea Association' and the 'Indian Research Fund Association' for kala azar (NAPIER); by the 'Indian Jute Mills Association' for hook-worm (MAPLESTONE); by the 'Indian Mining Association' for bowel diseases (MAITRA); by the 'Indian Research Fund Association' and School Endowment Fund for leprosy (MUIR). Work on diabetes (BOSE) was endowed by Mrs. MITRA in memory of her husband and the 'Darbhanga Research Endowment' supported the work of the filarial survey (RAO). Apart from these strictly technical matters the year 1927 will be memorable for two events: the first of these was the unveiling of a "Gate of Remembrance" to commemorate the discovery of mosquito transmission of malaria by Ross in 1898. Sir Ronald Ross was present and

declared that it was the proudest moment of his life. He recalled the names of LAVERAN and of MANSON "from first to last my sponsor, and the man who put me on the right trail." The second event was the meeting of the Seventh Congress of the Far Eastern Association of Tropical Medicine and part of the School was used for sectional meetings and exhibits.

ii. "The Indian Medical Year" was published as a Supplement to the May number of the *Indian Medical Gazette* and extra copies can still be obtained. It is worth buying. It is not entirely a statistical report of the health of the people of India; but deals with this and with books and papers published during 1927, mostly work done by officers of the Indian Medical Service. The papers referred to have appeared in other journals and together with some of the books have been noticed in this *Bulletin*. The subjects dealt with are the same as those referred to in the Report, but with more detail and for a wider circle of readers. The editor, Lt.-Colonel R. Knowles, expresses his grateful thanks to the numerous contributors who have helped to make this review a symposium by different writers.

J. H. Tull Walsh.

NAPIER (L. Everard). [M.R.C.S., L.R.C.P. (Lond.), in charge Kala-Azar Research Calcutta School of Tropical Medicine.] **Kala-Azar. A Handbook for Students and Practitioners.** 2nd Edition.—pp. viii+203. With 18 plates (5 coloured), 15 charts, 5 maps & 1 key map & 3 figs. 1927. Oxford University Press, London, Bombay, Calcutta & Madras. [8s. 6d.]

This little book, which deals with kala azar chiefly but not entirely as it is found in India, requires no criticism. The author's long experience of the disease from the clinical, epidemiological and experimental points of view entitle him to speak with authority. With a careful avoidance of redundant matter and the use of a clear style he has presented his readers with a concise, accurate and scientific account of the disease in all its aspects. The book can be thoroughly recommended to all those who have to deal with kala azar wherever it occurs.

C. M. Wenyon.

SMITH (Henry) [Lt.-Colonel, C.I.E., B.A., M.D., M.Ch. Indian Medical Service (retired), London. Late Civil Surgeon of Jullundur & Amritsar (Punjab, India).] With the Collaboration of Lt.-Col. A. E. J. LISTER, F.R.C.S., I.M.S. (ret.), London, Dr. Arnold KNAPP, New York, & Dr. J. Russell SMITH, London. **The Treatment of Cataract and Some other Common Ocular Affections.**—pp. xiii + 287. With 68 figs. on plates. 1928. Calcutta & London: Butterworth & Co., Bell Yard, Temple Bar, W.C.2. [15s. 6d.]

This volume deals mainly with the removal of the lens in its capsule, and the author's description of his particular technique is very clear and graphic. He has freely placed the fruit of his great experience of senile cataract as he found it in the Punjab at the disposal of the beginner and has furnished him with full details of how the condition may be most safely dealt with when the author's method of expression of the lens in its capsule is employed. Much of the subject matter has already been published, and papers by J. Russell Smith on Barraquer's operation, by A. E. J. Lister on the after effects of vitreous escape, and by Arnold Knapp on the late results of intracapsular cataract extraction are here reproduced. 'Tumbling' the lens is recommended as the safest method of delivery. Formerly this procedure was attended by some difficulty and risk in the case of the larger and harder varieties of cataractous lens. The

author now describes a technique, devised by him of late, by which he claims these lenses can be 'tumbled' as easily and safely as the Morgagnian type. Briefly this consists in using pressure on the sclera behind the lower margin of the lens with the lens hook and at the same time supporting the upper margin of the lens by the counter-pressure of a spatula placed over the section. The zonule ruptures below and the lower margin of the lens tilts forward; it can then be followed on its upward course by the lens hook folding the cornea beneath it. Smith's method of lid control as he describes it is most valuable and is applicable to other operations which involve opening the eyeball. After operation it is recommended that both eyes should be kept bandaged and undisturbed for a period of ten days. Naturally the author, like most surgeons, is somewhat prejudiced in favour of the type of operation which has proved successful in his own hands, and one can hardly expect him to assume a strictly impartial attitude towards other forms of operation in which the capsule is left in the eye. The disadvantages of the capsulotomy operation, especially when performed on the older type of patient encountered in Europe, are rather exaggerated by him. The ability to dispense with a pad and bandage on the third or fourth day after operation, as one can safely do in the case of the vast majority of elderly patients on whom extraction with capsulotomy and conjunctival flap has been performed, is a considerable asset. The author errs in thinking that the complication of a 'turned section' is always due to the occurrence of a concealed choroidal haemorrhage. The most common cause is a faulty section made on a squeezing patient with tight lids and prominent eyes; a squeeze during convalescence bursts the section and the margin of the upper lid everts the flap. The section of the book which deals with glaucoma and other ocular affections only comprises fourteen pages and it is difficult for the author to do himself full justice within so small a space. The book will be read with interest by all ophthalmic surgeons and will be invaluable to those who wish to undertake the expression of the cataractous lens in its capsule.

H. Kirkpatrick.

Hospital for Tropical Diseases, London.

A four-paged pamphlet, issued by the Hospital for Tropical Diseases, Endsleigh Gardens, London, W.C. 1, reviews the work of the Hospital in 1927. 635 patients were admitted suffering from various tropical diseases, of which sprue (99 cases), dysentery (90 cases), and malaria (48 cases) head the list. The special features of the Hospital are the private rooms and wards which provide accommodation for paying patients, both European and Non-European. Fifty-six seamen, of whom 24 were coloured, received treatment in the general wards. An out-patient department has been opened during the year for people unable to afford the fees of a consulting room. Benefactions received in 1927 include further endowments for beds from Burma and Ceylon, an artificial sunlight equipment from Mr. Samuel Samuels, and a regular supply of bael fruit and paw-paw fruit by friends in the P. & O. Company. The Hospital is a voluntary one, and relies largely on subscriptions and donations for its support. It is under the control of the Seamen's Hospital Society, which has during the year assumed responsibility also for the Queen Alexandra Memorial Hospital at Marseilles, a sister hospital where travellers from the East suffering from tropical diseases may break their journey for treatment before coming on to the Tropical Hospital in London.

The difficulty experienced by medical men in obtaining particulars of newly published books on subjects of interest to them will be largely overcome by the "Quarterly Bibliography of Books on Medicine and Allied Sciences" appearing in the *Medical Press and Circular*. The

Bibliography in the number for July 11th, 1928, covers the period April-June, 1928, and gives over 400 titles of books published in all parts of the world. Though not exhaustive, a check againt English booksellers' and publishers' lists for the same period shows that nearly 80 per cent. of possible titles of English books have been included. The Bibliography is compiled in the Sales Department of Messrs. Baillière, Tindall & Cox. It would be improved by the inclusion of the place of publication and publishers' name in all cases, and by stricter attention to the alphabetical arrangement under authors' names.